

Appendix A



**Market analysis of wholesale markets for local access provided at
a fixed location and central access provided at a fixed location
for mass-market products**

(Markets 3a/ 2016 and 3b 2016)

14 September 2021

1	INTRODUCTION	10
1.1	GENERAL	10
1.2	ELECTRONIC COMMUNICATIONS LEGISLATION	10
1.2.1	<i>Current legislation in force.....</i>	<i>10</i>
1.2.2	<i>Planned changes to legislation and applicable law</i>	<i>12</i>
1.3	THE PTA IMPLEMENTATION OF MARKET ANALYSIS	14
2	DEFINITION OF THE RELEVANT MARKETS	16
2.1	GENERAL ON DEFINITIONS OF SERVICE MARKETS	16
2.2	DEFINITION OF RELEVANT MARKETS, ACCORDING TO ESA RECOMMENDATIONS AND EU COMMISSION GUIDELINES	17
3	COMPETITION CONDITIONS ON RETAIL MARKETS FOR ACCESS TO BROADBAND SERVICE AT A FIXED LOCATION	18
3.1	GENERAL	18
3.1.1	<i>Access, distribution of electronic communications networks, number of customers and line charge</i> <i>18</i>	
3.1.2	<i>Supply, price, and market share on the retail market.....</i>	<i>22</i>
3.1.3	<i>Internet service and Iceland in international context</i>	<i>37</i>
3.1.4	<i>Demand on the market for Internet service.....</i>	<i>39</i>
3.1.5	<i>Development of offer of various access technologies on the retail market for access at a fixed</i> <i>location45</i>	
3.1.6	<i>Internet service companies' business model.....</i>	<i>52</i>
3.2	DEFINITION OF BROADBAND ACCESS (INTERNET SERVICE) AT RETAIL LEVEL	53
3.2.1	<i>Varying access technology in broadband access (Internet service) at retail level</i>	<i>53</i>
3.2.2	<i>Internet connections through copper, fibre-optic and cable.....</i>	<i>55</i>
3.2.3	<i>Distinction between standard broadband access and high-quality access at the retail level.....</i>	<i>66</i>
3.2.4	<i>Distinction between standard broadband access provided at a fixed location and wireless service.</i> <i>68</i>	
3.2.5	<i>Definition of the relevant service markets at retail level</i>	<i>72</i>
3.2.6	<i>Competition in retail markets</i>	<i>74</i>
4	DEFINITION OF WHOLESALE MARKETS	77
4.1	GENERAL	77
4.1.1	<i>Market analysis according to the recommendation on relevant markets and its explanatory notes</i> <i>77</i>	
4.1.2	<i>Boundary between the wholesale market for access provided at a fixed location, wholesale</i> <i>market for central access and wholesale market for high-quality access</i>	<i>80</i>
4.2	ASSESSMENT OF VARIOUS ACCESS TECHNOLOGY FOR THE WHOLESALE MARKET FOR LOCAL ACCESS (MARKET 3A)	81
4.2.1	<i>General</i>	<i>81</i>
4.2.2	<i>Copper networks</i>	<i>81</i>
4.2.3	<i>Fibre-optic networks</i>	<i>82</i>
4.2.4	<i>Cable systems for TV.....</i>	<i>83</i>
4.2.5	<i>Wireless networks.....</i>	<i>83</i>
4.2.6	<i>Self-supply.....</i>	<i>83</i>
4.2.7	<i>Conclusion regarding definition of Market 3a</i>	<i>84</i>
4.2.8	<i>Local access on offer in this country</i>	<i>84</i>
4.3	ASSESSMENT OF VARIOUS ACCESS TECHNOLOGY FOR THE WHOLESALE MARKET FOR CENTRAL ACCESS (MARKET 3B)	87
4.3.1	<i>Copper and fibre-optic networks</i>	<i>88</i>
4.3.2	<i>Cable systems for TV.....</i>	<i>88</i>
4.3.3	<i>Wireless networks.....</i>	<i>89</i>
4.3.4	<i>Self-supply.....</i>	<i>89</i>
4.3.5	<i>Conclusion regarding definition of Market 3b</i>	<i>89</i>

4.3.6	Central access on offer in this country	90
5	GENERAL ON ANALYSIS OF GEOGRAPHIC MARKETS	93
5.1	GENERAL	93
5.2	BEREC COMMON POSITION ON GEOGRAPHIC ASPECTS OF MARKET ANALYSIS FROM 2014	98
5.3	THE IMPACT OF NEXT GENERATION NETWORKS AND NUMBER OF INFRASTRUCTURE COMPETITORS ON GEOGRAPHIC ANALYSIS	102
5.3.1	General	102
5.3.2	The impact of next generation networks on competition	102
5.3.3	Geographical definition of markets, according to the EU Commission Recommendation on next generation networks	104
5.3.4	The impact of multiple competitors on Market 3a on geographic analysis and SMP in the environment of next generation electronic communications networks	106
5.4	THE RISK AND/OR GAIN FROM GEOGRAPHIC MEASURES BY AREA	108
5.5	GEOGRAPHICAL DELINEATION AND/OR VARYING OBLIGATIONS BY AREA	110
5.6	DEFINITION OF GEOGRAPHIC MARKETS IN EUROPE	112
5.6.1	General	112
5.6.2	Discussion on market analyses in Europe with respect to geographic definition of markets	117
5.6.3	Overview of market analyses in Europe with respect to geographic definition of markets	118
5.7	ARGUMENTS FOR MORE DETAILED GEOGRAPHIC ANALYSIS OF THE RELEVANT MARKETS	119
6	GEOGRAPHIC ANALYSIS OF WHOLESALE MARKET FOR LOCAL ACCESS WITH FIXED CONNECTION (MARKET 3A)	120
6.1	GENERAL	120
6.2	THE PTA DECISION NO. 21/2014 WITH RESPECT TO WHOLESALE MARKET FOR LOCAL LOOPS	121
6.3	DEPLOYMENT OF NETWORKS, DEPLOYMENT PLANS AND NETWORK TOPOLOGY	123
6.4	SELECTION OF AREAS FOR ANALYSIS	137
6.4.1	General	137
6.4.2	Conclusion on selection of areas for analysis	142
6.5	THE POSITION ON THE RETAIL MARKET, WITH RESPECT TO GEOGRAPHIC ANALYSIS	148
6.5.1	General	148
6.5.2	Conclusion on the position on retail markets with respect to geographic analysis	151
6.6	ASSESSMENT OF HOMOGENEITY IN COMPETITIVE CONDITIONS IN SELECTED AREAS	156
6.6.1	General	156
6.6.2	Access barriers by area	158
6.6.3	Number of significant competitors by area	159
6.6.4	Market share in wholesale and retail by area	161
6.6.5	Pricing and possible price difference in wholesale and retail by area	170
6.6.6	Other aspects, including marketing policy, marketing behaviour, the service offer, quality of connections and nature of demand by area	180
6.7	CONCLUSION WITH RESPECT TO GEOGRAPHIC DEFINITION OF THE WHOLESALE MARKET FOR LOCAL ACCESS WITH FIXED CONNECTION (MARKET 3A)	182
7	GEOGRAPHICAL DEFINITION OF WHOLESALE MARKET FOR CENTRAL ACCESS PROVIDED AT A FIXED LOCATION FOR MASS-MARKET PRODUCTS (MARKET 3B)	196
7.1	GENERAL	196
7.2	THE PTA DECISION NO.21/2014 WITH RESPECT TO WHOLESALE MARKET FOR BITSTREAM ACCESS	197
7.3	DEPLOYMENT OF NETWORKS, DEPLOYMENT PLANS AND NETWORK TOPOLOGY	199
7.4	SELECTION OF AREAS FOR ANALYSIS	213
7.4.1	General	213
7.4.2	Conclusion on selection of areas for analysis	219
7.5	THE POSITION ON THE RETAIL MARKET, WITH RESPECT TO GEOGRAPHIC ANALYSIS	224
7.5.1	General	224

7.5.2	<i>Conclusion on the position on retail markets with respect to geographic analysis</i>	226
7.6	ASSESSMENT OF HOMOGENEITY IN COMPETITIVE CONDITIONS IN SELECTED AREAS	232
7.6.1	<i>General</i>	232
7.6.2	<i>Access barriers by area</i>	233
7.6.3	<i>Number of significant competitors by area</i>	235
7.6.4	<i>Market share in wholesale and retail by area</i>	236
7.6.5	<i>Pricing and possible price difference in wholesale and retail by area</i>	247
7.6.6	<i>Other aspects, including marketing policy, marketing behaviour, the service offer, quality of connections and nature of demand by area</i>	255
7.7	CONCLUSION WITH REGARDS TO GEOGRAPHIC DEFINITION OF THE WHOLESALE MARKET FOR CENTRAL ACCESS TO MASS-PRODUCED PRODUCTS (MARKET 3B)	257
8	ANALYSIS OF SMP ON THE WHOLESALE MARKET FOR LOCAL ACCESS WITH FIXED CONNECTION (MARKET 3A)	270
8.1	INTRODUCTION	270
8.2	MARKET SHARE	273
8.3	TOTAL SIZE AND PROFITABILITY	278
8.4	ENTRY BARRIERS	281
8.4.1	<i>General comments on barriers to entry</i>	281
8.4.2	<i>Control of infrastructure that is difficult to duplicate</i>	282
8.4.3	<i>Sunk costs</i>	284
8.4.4	<i>Economy of scale</i>	285
8.4.5	<i>Economy of scope</i>	286
8.4.6	<i>Access to capital</i>	288
8.4.7	<i>Barriers to expansion</i>	290
8.4.8	<i>Sales and service systems</i>	291
8.4.9	<i>Vertical integration</i>	292
8.4.10	<i>Conclusions concerning entry barriers in the relevant market</i>	293
8.5	COMPETITION ON THE MARKET IN QUESTION	294
8.5.1	<i>Customer countervailing buying power</i>	294
8.5.2	<i>Product diversification / bundling</i>	296
8.5.3	<i>Possible competition</i>	297
8.5.4	<i>Pressure from substitute products</i>	298
8.5.5	<i>Customer choice and potential switching costs/the effects of binding contracts</i>	298
8.5.6	<i>Conclusions on competition on the relevant market</i>	299
8.6	ASSESSMENT OF SMP ON THE RELEVANT MARKET (MARKET 3A)	300
8.6.1	<i>General</i>	300
8.6.2	<i>Designation of an undertaking with significant market power</i>	301
9	ANALYSIS OF SMP ON THE WHOLESALE MARKET FOR CENTRAL ACCESS PROVIDED AT A FIXED LOCATION FOR MASS-MARKET PRODUCTS (MARKET 3B)	303
9.1	INTRODUCTION	303
9.2	MARKET SHARE	307
9.3	TOTAL SIZE AND PROFITABILITY	312
9.4	ENTRY BARRIERS	316
9.4.1	<i>General comments on barriers to entry</i>	316
9.4.2	<i>Control of infrastructure that is difficult to duplicate</i>	316
9.4.3	<i>Sunk costs</i>	319
9.4.4	<i>Economy of scale</i>	319
9.4.5	<i>Economy of scope</i>	321
9.4.6	<i>Access to capital</i>	322
9.4.7	<i>Barriers to expansion</i>	324
9.4.8	<i>Sales and service systems</i>	326

9.4.9	<i>Vertical integration</i>	326
9.4.10	<i>Conclusions concerning entry barriers in the relevant market</i>	328
9.5	COMPETITION ON THE MARKET IN QUESTION	329
9.5.1	<i>Customer countervailing buying power</i>	329
9.5.2	<i>Product diversification / bundling</i>	331
9.5.3	<i>Possible competition</i>	331
9.5.4	<i>Pressure from substitute products</i>	333
9.5.5	<i>Customer choice and potential switching costs/the effects of binding contracts</i>	333
9.5.6	<i>Conclusions on competition on the relevant market</i>	334
9.6	ASSESSMENT OF SMP ON THE RELEVANT MARKET (MARKET 3B).....	335
9.6.1	<i>General</i>	336
9.6.2	<i>Designation of an undertaking with significant market power</i>	336
10	IMPOSITION OF OBLIGATIONS ON THE WHOLESALE MARKET FOR LOCAL ACCESS WITH FIXED CONNECTION (MARKET 3A)	338
10.1	IN GENERAL ON OBLIGATIONS	338
10.2	COMPETITION PROBLEMS.....	339
10.2.1	<i>General</i>	339
10.2.2	<i>Competition problems on the relevant market</i>	340
10.2.3	<i>Vertical integration and transfer of SMP</i>	341
10.2.4	<i>Problems related to assessment of SMP on the relevant market</i>	344
10.2.5	<i>Further on competition problems related to Market 3a in this country</i>	345
10.2.6	<i>A case that the Competition Authority is processing vis-à-vis the Siminn Group</i>	368
10.2.7	<i>Settlements between Siminn Group and the CA</i>	369
10.2.8	<i>Summary and conclusions on competition problems related to Market 3a</i>	370
10.3	OBLIGATIONS IN FORCE	371
10.3.1	<i>Obligations that were imposed with the PTA Decision no. 21/2014</i>	371
10.4	ASSESSMENT OF IMPACT OF EXISTING OBLIGATIONS AND NEED FOR CONTINUING APPLIANCE OF OBLIGATIONS	375
10.4.1	<i>The impact of existing obligations</i>	375
10.4.2	<i>Conditions pursuant to the settlement between the Siminn Group and the Competition Authority</i> 376	
10.4.3	<i>The necessity to impose and maintain the relevant obligations and the impact of new obligations</i>	382
10.5	IMPOSITION OF OBLIGATIONS PURSUANT TO THE ELECTRONIC COMMUNICATIONS ACT	386
10.6	OBLIGATIONS THAT VARY BY GEOGRAPHIC AREA	387
10.6.1	<i>Guidelines from EU and BEREC</i>	387
10.6.2	<i>The PTA conclusion with respect to varying obligations on the relevant market</i>	388
10.7	IMPOSITION AND MAINTAINING OBLIGATIONS	389
10.7.1	<i>Obligation to provide access</i>	389
10.7.2	<i>Obligation for non-discrimination</i>	405
10.7.3	<i>Obligation for transparency</i>	415
10.7.4	<i>Obligation for separation of accountancy</i>	418
10.7.5	<i>Obligation for price control</i>	421
10.7.6	<i>Obligation for cost accounting</i>	441
11	IMPOSITION OF OBLIGATIONS ON THE WHOLESALE MARKET FOR CENTRAL ACCESS PROVIDED AT A FIXED LOCATION FOR MASS-PRODUCED PRODUCTS (MARKET 3B)	443
11.1	IN GENERAL ON OBLIGATIONS	443
11.2	COMPETITION PROBLEMS.....	444
11.2.1	<i>General</i>	444
11.2.2	<i>Competition problems on the relevant market</i>	445
11.2.3	<i>Vertical integration and transfer of SMP</i>	446
11.2.4	<i>Problems related to assessment of SMP on the relevant market</i>	448

11.2.5	<i>Further on competition problems related to Market 3b in this country.....</i>	450
11.2.6	<i>Cases that the Competition Authority is processing vis-à-vis the Siminn Group</i>	473
11.2.7	<i>Settlements between Siminn Group and the CA.....</i>	473
11.2.8	<i>Summary and conclusions on competition problems related to Market 3b</i>	474
11.3	OBLIGATIONS IN FORCE	476
11.3.1	<i>Obligations imposed with the PTA Decision no. 21/2014 from 13 August 2014</i>	476
11.4	ASSESSMENT OF IMPACT OF EXISTING OBLIGATIONS AND NEED FOR CONTINUING APPLIANCE OF OBLIGATIONS	480
11.4.1	<i>The impact of existing obligations.....</i>	480
11.4.2	<i>Conditions pursuant to the settlement between the Siminn Group and the Competition Authority</i>	481
11.4.3	<i>The necessity to impose and maintain relevant obligations and the impact of the obligations</i>	482
11.5	IMPOSITION OF OBLIGATIONS PURSUANT TO THE ELECTRONIC COMMUNICATIONS ACT	486
11.6	OBLIGATIONS THAT VARY BY GEOGRAPHIC AREA	487
11.6.1	<i>Guidelines from EU and BEREC.....</i>	487
11.6.2	<i>The PTA conclusion with respect to varying obligations on the relevant market.....</i>	488
11.7	IMPOSITION AND MAINTAINING OBLIGATIONS	488
11.7.1	<i>Obligation to provide access.....</i>	488
11.7.2	<i>Obligation for non-discrimination</i>	496
11.7.3	<i>Obligation for transparency</i>	507
11.7.4	<i>Obligation for separation of accountancy.....</i>	510
11.7.5	<i>Obligation for price control</i>	513
11.7.6	<i>Obligation for cost accounting</i>	523

Summary and Conclusions

This document contains a Post and Telecom Administration (PTA) analysis of the wholesale markets for local access provided at a fixed location and central access provided at a fixed location for mass-market products. These are Markets 3a and 3b in the EFTA (ESA) recommendation on the relevant markets from 2016. The market analysis is the basis for decisions on whether to impose, maintain, or withdraw specific regulatory obligations on electronic communications undertakings that have been designated as having significant market power.

The draft analysis documents submitted for national consultation on 30 April and 30 October 2020, for the purposes of this market analysis and subsequent decision, were made during the period of validity of Act no. 69/2003 on the Post and Telecom Administration. That Act has now been replaced by Act no. 75/2021 on the Electronic Communications Office in Iceland (ECOI), which came into force on 1 July 2021. Pursuant to Act no. 75/2021, the ECOI has assumed the statutory role of supervising implementation of the Act on Electronic Communications no. 81/2003. The ECOI generally assumes as a basis that prior solutions of the Post and Telecom Administration represent precedents for administrative action by the ECOI, as they are implementation and interpretation of the same provisions of the Electronic Communications Act. One must also regard the Decisions of the ECOI as a continuation of Decisions of the Post and Telecom Administration, among other things with respect to obligations that have been imposed on Mila. Whenever the Post- and Telecom Administration or PTA is mentioned hereafter, it should be read as the Electronic Communications Office of Iceland, ECOI, except when former Decisions and laws or regulation are referenced.

The analysis and Decision on obligations replaces the analysis and Decision for Markets 4 and 5 pursuant to ESA recommendations from 2008, see PTA Decision no. 21/2014, that was published on 13 August 2014. Market 4 corresponded to Market 3a and Market 5 corresponded to Market 3b, but the definition of the markets was to some extent altered with the above specified ESA recommendation on the relevant markets from 2016.

The conclusion of the analysis on markets for wholesale access to networks provided at a fixed location (Market 4) in 2014 was to the effect that Mila had significant market power and subsequent to the analysis, the following obligations were imposed on the company:

- Obligation to provide access.
- Obligation for non-discrimination.
- Obligation for transparency.
- Obligation for separation of accountancy.
- Obligation on price control, except with respect to fibre-optic local loops on the fulfilment of specific conditions.
- Obligation for cost accounting.

The conclusion of the analysis on markets for wholesale access to networks provided at a fixed location (Market 5) in 2014 was to the effect that Mila had significant market power and subsequent to the analysis, the following obligations were imposed on the company:

- Obligation to provide access.
- Obligation for non-discrimination.

- Obligation for transparency.
- Obligation for separation of accountancy.
- Obligation on price control, except with respect to bitstream on fibre-optic local loops on the fulfilment of specific conditions.
- Obligation for cost accounting.

The PTA has now made a new analysis of both these markets on the basis of the new definitions of these markets.

The conclusion in the PTA preliminary market analysis in 2021 on Market 3a is the following:

Market 3a is composed of access networks (local loops) provided at a fixed location, both copper and fibre-optic (though not Míla P2P Ljósnet to companies), and related facilities, along with virtual solutions (VULA), which fulfil the same needs as local loop lease.

The PTA made a detailed geographic analysis of the markets in question by municipalities and came to the conclusion that despite somewhat differing competitive conditions between municipalities, these were not of such significance that they would justify segmented geographic markets. The PTA however intends to impose varying obligations in 17 municipalities of 69, where about 70% of the population lives and where in the opinion of the PTA more efficient competition pertains than in other areas.

Since a market analysis was made in the year 2014, the Míla market share has dropped from 83% to 57% at the end of 2020. The PTA considers that although the market share has dropped significantly, it is still sufficiently high to give very strong indications of significant market power. Other factors support the conclusion on Míla having significant market power, such as access barriers and lack of competition. Míla still controls the only access network that has close the national coverage and has made major investments in fibre-optic networks during recent years. The Siminn Group position is still very strong and Siminn's market share on the downstream retail market has been relatively stable in recent years, at just under 50%, and was just over 46% at the end of 2020. It is the PTA's conclusion that Míla still has significant market power on this market and that this will not change during the lifetime of the analysis.

The PTA intends to maintain the designation of Míla/Siminn Group as an undertaking with significant market power and to maintain/or impose appropriate obligations on Míla and Siminn, which are:

- Obligation for access (Míla).
- Obligation for non-discrimination (Míla, but the obligation also applies to Siminn in connection with the ERT test).
- Obligation for transparency (Míla).
- Obligation for non-discrimination (Míla, but the obligation also applies to Siminn in connection with the ERT test).
- Obligation for price control on copper local loops (Míla).
- Obligation to withstand an ERT test with respect to fibre-optic local loops (Míla, but the obligation also applies to Siminn).
- Obligation for cost accounting (Míla, but the obligation also applies to Siminn in connection with the ERT test).

The obligations are somewhat more extensive than before. An obligation is imposed on the Siminn Group to withstand what is called an ERT test¹ with respect to fibre-optic local loops and to service through them. Furthermore, in the obligation for access to ducts and conduits, there is more detailed elaboration than before on the publishing of information on ducts and conduits and on planned civil works. In 17 specific municipalities where there is more competition than elsewhere, obligations on access to ducts and conduits, obligation to advertise civil works and an obligation to inform with 5 years' notice on migration in network systems, will not apply.

The conclusion in the 2021 PTA market analysis on Market 3b is as follows:

This market consists of various bitstream solutions which provide connections between end users and access points which are central in an electronic communications network and used to provide traditional Internet access, along with related service, such, as IP telephone (VoIP) and IPTV.

The PTA made a detailed geographic analysis of the market in question by municipalities and came to the conclusion that despite somewhat differing competitive conditions between municipalities, these were not of such significance that they would justify segmented geographic markets. The PTA however intends to impose varying obligations in 17 municipalities where in the opinion of the PTA, more efficient competition pertains than in other areas.

Since a market analysis was made in the year 2014, the Mila market share has dropped from 65% to 57% at the end of 2020. The PTA however considers that although market share has dropped somewhat, it is still sufficiently high to give a strong indication of significant market power. Other factors support the conclusion on Mila having significant market power, such as access barriers and lack of competition. Mila still controls the only access network that spans the whole country and has made major investments in bitstream equipment for fibre-optic networks during recent years. The Siminn Group position is still very strong and Siminn's market share on the downstream retail market has been relatively stable in recent years, at just under 50%, and was just over 46% at the end of 2020. It is the PTA's conclusion that Mila still has significant market power on this market and that this will not change during the lifetime of the analysis.

The PTA intends to maintain the designation of Mila/Siminn Group as an undertaking with significant market power and to maintain/or impose appropriate obligations on Mila and Siminn, which are:

- Obligation for access (Mila).
- Obligation for non-discrimination (Mila, but the obligation also applies to Siminn in connection with the ERT test).
- Obligation for transparency (Mila).
- Obligation for non-discrimination (Mila, but the obligation also applies to Siminn in connection with the ERT test).
- Obligation for price control on copper local loops (Mila).

¹ Economic Replicability Test – ERT.

- Obligation to withstand an ERT test with respect to fibre-optic local loops (Mila, but the obligation also applies to Siminn).
- Obligation for cost accounting (Mila, but the obligation also applies to Siminn in connection with the ERT test).

Obligations are somewhat more wide-reaching than before, as an obligation is imposed on the Siminn group to withstand what is called an ERT test with respect to fibre-optic local loops and service provided over them. In 17 specific municipalities where there is more competition than elsewhere, the obligation to inform with 2 years' notice on migration in network systems will not apply.

1 Introduction

1.1 General

1. This document contains a Post and Telecom Administration (PTA) analyses of the wholesale markets for local access provided at a fixed location and central access provided at a fixed location for mass-market products, which are Markets 3a and 3b in the EFTA (ESA) Surveillance Authority recommendations on the relevant markets that can be susceptible to ex-ante regulation from 2016. These are markets that largely correspond to Markets 4 and 5 in the older ESA recommendations from 2008, which were the wholesale market for access to local loops and the wholesale market for bitstream. The PTA published an analysis of Markets 4 and 5 along with its Decision on obligations on undertakings with significant market power on 13 August 2014, see PTA Decision no. 21/2014. The definition of these markets has changed in the new ESA Recommendation, with respect to developments in technology and access infrastructure, but Markets 3a and 3b essentially correspond to Markets 4 and 5 in the older recommendation, and this analysis and attached decision on obligations replace the above specified PTA Decision no. 21/2014.

2. Market analyses are divided into several main sections. The starting point is the definition of a related retail market, the relevant service markets at wholesale level and the geographic markets. An analysis is then made to determine whether competition is active on the wholesale markets in question, or whether one or more undertakings on the market has significant market power. It is finally evaluated whether it is appropriate to impose, maintain, amend or withdraw obligations on undertakings with significant market power on the relevant market.

1.2 Electronic communications legislation

1.2.1 Current legislation in force

3. The Electronic Communications Act no. 81/2003 implements the European Union (EU) Directives on Electronic Communications² and one Directive on personal data protection in electronic communications³. The EU electronic communications Directives are intended to create a homogeneous working environment for electronic communications undertakings in Europe, to limit barriers and create conditions for sustainable competition for the benefit of consumers. In Chapter V of the Electronic Communications Act, the obligation is imposed on the PTA to define specific electronic communications markets by service type and geographically in accordance with the main principles of competition law and with obligations pursuant to the agreement on the European Economic Area (EEA Agreement). Furthermore, the PTA is required to analyse the defined markets and determine whether they are

² Directive of the European Parliament and Council no. 2002/19/EC from 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access and Interconnection Directive).

Directive of the European Parliament and Council no. 2002/20/EC, of 7 March 2002, on the authorisation of electronic communications networks and services (Authorisation Directive).

Directive of the European Parliament and Council no. 2002/21/EC, of 7 March 2002, on a common regulatory framework for electronic communications networks and services (Framework Directive).

Directive of the European Parliament and Council no. 2002/22/EC, of 7 March 2002, on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive).

³ Directive of the European Parliament and Council no. 2002/58/EC, of 12 July 2002, concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy in electronic communications).

characterised by effective competition. If the PTA comes to the conclusion that there is effective competition in the relevant market – that is that no operator has significant market power – it is prohibited from imposing obligations on the operators in that market. If the Administration has previously imposed obligations on undertakings in the relevant market, these shall be withdrawn, and no new obligations imposed. Should the PTA, on the other hand, come to the conclusion that there is no effective competition on the relevant market because one or more undertakings having significant market power, then the Administration is obliged to designate the undertakings in question as having significant market power and to impose on them the appropriate obligations. According to article 7 of the Act on the Post and Telecom Administration, the PTA is obliged to consult with ESA and with other electronic communications regulatory bodies in the EEA on the definition of markets, on market analysis and on decisions on obligations.

4. The EFTA Surveillance Authority (ESA) has issued guidelines and recommendations that deal with implementation of market analysis. These are on the one hand, guidelines on market analysis and assessment of significant market power from 14 July 2004⁴ and on the other hand recommendation on the relevant markets susceptible to ex ante regulation from 11 May 2016 (hereafter recommendations).⁵ The EU Commission issued new recommendation on the relevant markets in December 2020⁶, where the number of markets is reduced, and this recommendation do not apply to this market analysis, as it has neither been adopted in the EEA agreement or published by ESA. When implementing the market analysis in question, account shall also be taken of various recommendations from the EU Commission and guidelines from BEREC, the Body of European Regulators for Electronic Communications. The recommendations and guidelines will be explained at appropriate points in this analysis.

5. In the existing recommendation on the relevant markets that can be subject to ex ante regulation, four types of electronic communications markets that the PTA is obliged to analyse have been defined in advance in accordance with current electronic communications legislation and with Iceland's obligations pursuant to the EEA Agreement. Furthermore, the electronic communications legislation prescribes that the PTA define these markets in accordance with circumstances that pertain in Iceland. Given the above it could transpire that the PTA market analysis will deviate from what is prescribed in the recommendation.

6. Regulation on market analysis in the field of electronic communications, no. 741/2009 was issued in 2009 with the authority of paragraph 3 of article 18 and article 75 of the Electronic Communications Act. The Regulation covers the process and the main criteria to be applied

⁴ The guidelines took into account analogous guidelines from the EU Commission from 2002. The EU Commission has now revised its guidelines on market analysis and assessment of significant market power, see *Commission guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and service* from 26 April 2018 (2018/C 159/01). See also Commission staff working document which has further coverage on geographical definition of markets, see “*Commission staff working document, C(2018) 2374 final*.” These guidelines have not been formally adopted by ESA, but the PTA will take them into account in the market analyses here under discussion. According to PTA information, ESA is preparing to issue guidelines, analogous to those issued by the Commission in 2018.

⁵ EFTA SURVEILLANCE AUTHORITY DECISION of 11 May 2016 RECOMMENDATION on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation (<http://www.eftasurv.int/media/decisions/College-decision---Revision-of-ESA-recommendations-on-Relevant-Markets-susceptible-to-ex-a.pdf>) They take account of Commission recommendations of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (Text with EEA relevance) (2014/710/EU).

⁶ See C(2020) 8750 final.

when defining electronic communications markets, analysing relevant markets, making decisions on designation of an undertaking or undertakings as having significant market power and making decisions on obligations according to the Electronic Communications Act no. 81/2003. The regulation is based on the above specified EU instruments, recommendations and guidelines. The Regulation was amended with Regulation no. 206/2018, where the main change was that the list of relevant markets was revised in accordance with the newest ESA regulation on relevant markets that can be susceptible to ex ante regulation.

1.2.2 Planned changes to legislation and applicable law

7. In 2018, two new instruments were endorsed within the EU that replace older Directives in the field of electronic communications. These are on the one hand, the Directive of the European Commission (EU)2018/1972, from 11 December 2018 on the setting of European regulations on electronic communications, European Electronic Communications Code or EECC Directive, sometimes referred to as “the Code”. This is a new recast, that is to say, revised main material rules on the electronic communications market, which replaces four older Directives. The other instrument is a Regulation of the European Parliament and Commission (EU) 2018/1971, from 11 December 2018 on the establishment of the Body of European Regulators for Electronic Communications or BEREC and the founding of the supporting Agency for Support for BEREC or BEREC Office), concerning amendments to the regulation (EU) 2015/2120, the annulment of regulation (EU) no. 1211/2009.

8. The above-named instruments have not yet been adopted in the EEA agreement, but this is the intention and, in all likelihood, will be done in the year 2021. A bill for new electronic communications legislation has been put to the Althingi, which is intended to transpose the instruments in question into Icelandic law and to provide the authority to set the related regulations. It is not clear when the procedure of the bill will be completed, but it had not been completed when this text was written in April 2021. This market analysis and the decision on imposition of obligations are thus entirely pursuant to the Act on Electronic Communications no. 81/2003.

9. According to the bill before the parliament, certain amendments are planned to provisions on market analyses and obligations. It should first be noted that it is the intention to enshrine in law various emphases in implementation of market analysis that were previously to be found in ESA recommendations. The change will in all likelihood not have a major impact on implementation of market analyses, as the PTA has ordinarily endeavoured to pay meticulous attention to such guidelines and recommendations.

10. In the bill, it is proposed to enshrine in law that the PTA shall implement market analyses within a specific timeframe. The general time-limit for review of analyses on specific markets will be 5 years. If a new market is defined in a recommendation on the relevant markets, market analysis shall be implemented within three months of the publication of the recommendations. These time limits have no impact on the PTA plans during the period of validity of this analysis, as the intention is to review the analysis within three years.

11. Various amendments are planned with respect to imposition of obligations. For example, in article 47 of the bill, there is a new provision on access to facilities where one must assess whether such obligations can suffice to support competition, before a decision is made on applying obligations for another kind of access pursuant to article 48. Another new provision is an obligation for separation of operations (article 56), where such may only be applied in

exceptional instances when other obligations do not suffice to correct a serious competition problem.

12. Pursuant to paragraph 7 of article 46 of the bill, the PTA is obliged to monitor market development, such as in connection with business agreements, including agreements on co-investment, which have an impact on competitiveness, with respect to obligations on the market. Pursuant to these provisions, it can be an option to alter a prior decision on obligations, without a new market analysis having been conducted, if circumstances on a market change.

13. Then there are provisions on measures by companies with significant market power, with respect to cooperation arrangement in connection with obligations (item a, paragraph 1 of article 58), core investment in high-speed networks (article 55) and separation of operations at own initiative (article 57) that can lead to amendments to obligations. Pursuant to article 58 of the bill, a specific procedure must be followed in such instances, that among other things, constitute general consultation. The procedure constitutes among other things that the company in question makes specific commitments in connection with access, that can replace obligations to some extent or completely.

14. Pursuant to article 59, wholesale companies with significant market power can be exempt from obligations to a large extent, on fulfilment of specific conditions, which are among other things that the company operates solely on a wholesale market and has no connections with retail companies.

15. Pursuant to article 60, specific rules apply on procedure that shall be adhered to when regulated networks are withdrawn from operation, e.g., when the operation of a copper network is discontinued in some area. The PTA can withdraw obligations that rest on such a network if specific conditions are fulfilled, such as that another access option is available of similar quality.

16. In temporary provisions of the bill, one can among other things, find rules on applicable law. Temporary provision I prescribes that until new regulations have been confirmed, those rules and regulations that now apply to the matters covered by the bill shall be fully in force, insofar as those provisions do not contravene the provisions of the bill. In provision III it is prescribed that all obligations imposed on an electronic communications undertaking, pursuant to Chapter VII of the Act on Electronic Communications nr. 81/2003, and that are in force on the coming into force of the new legislation, shall be maintained until a review of the provisions has been conducted, subsequent to market analysis.

17. As stated here above in Section 1.2.1, the EU Commission issued new recommendation on the relevant markets in December 2020. These recommendations have not been adopted in the EEA agreement or been issued by the EFTA Surveillance Authority. The PTA is therefore obliged to apply the existing ESA recommendation from 2016, where Markets 3a and 3b are defined, and the definition of service markets in this analysis is according to this recommendation. It is expected that new Commission recommendation will either be adopted in the EEA agreement or issued by ESA, in all likelihood, subsequent to the adoption of the new electronic communications package in the agreement. It will therefore probably be applied when the next market analysis takes place. The difference between the new recommendation and the older recommendation, with respect to Market 3a and 3b is that in the new recommendation, Market 3b is removed and Market 3a is a wholesale market for local access with the fixed line connection and receives the number 1. Despite the fact that Market 3b will not be included in the recommendation when the next market analysis is conducted, it could be

examined whether it still fulfils the conditions that make it susceptible to the imposition of obligations under the circumstances that pertain in this country.⁷

1.3 The PTA implementation of market analysis

18. Implementation of market analysis is divided into three main phases:

- Definition of the relevant service markets and geographic markets.
- Analysis of each of the defined markets, assessment of whether there is effective competition on these markets and a Decision made as to whether one or more undertakings have significant market power.
- A Decision is made on whether obligations shall be imposed, maintained, amended or withdrawn on undertakings with significant market power.

19. Work on this analysis commenced at the beginning of 2018. The Administration has collected information, among other things regular statistical information, and has had communications with parties to the market, among other things in the form of queries and gathering of data. Statistics are collected from all parties to the market at 6 monthly intervals. In addition to this, the PTA collects and registers information on all changes to tariffs as they take place. In addition to this the PTA operates a database on distribution of electronic communications networks (GAF).

20. On 30 April 2020 the preliminary draft of this market analysis was sent to the Competition Authority and to stakeholders and they were asked to make observations. The consultation lasted until 10 July 2020. The PTA subsequently processed the comments received and reported them in a separate document (Appendix B). The PTA considered it proper to gather further data as a result of comments received. In the autumn of 2020, electronic communications undertakings were sent various queries, among other things for the purpose of gaining a clearer picture of investment plans in fibre-optic local loops. The PTA, furthermore, commissioned the company MMR, to conduct a consumer survey, where among other things, consumer knowledge was investigated and aspects that determine their choice of service provider, their perceptions of varying Internet connections and their potential reaction to increases in price.

21. After having reviewed comments from stakeholders and the conclusions of the consumer survey, the PTA considered it appropriate to make further specified changes to the draft market analysis and to the planned imposition of obligations. The PTA presented planned changes and the conclusions of the consumer survey in an additional consultation which lasted from 30 October until 27 November 2020. In the additional consultation, stakeholders had the opportunity to make comments with respect to three changes which are subsequently presented in more detail. The changes related to the PTA having decided to retract its intention to move Ljósnet to the corporate market, and to moving mobile phone transmitters from the current

⁷ See at the bottom of page 56 in the explanatory notes to the EU Commission recommendations. COMMISSION STAFF WORKING DOCUMENT EXPLANATORY NOTE Accompanying the document COMMISSION RECOMMENDATION on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code {C(2020) 8750 final} <https://ec.europa.eu/digital-single-market/en/news/commission-updated-recommendation-relevant-markets>.

Market 6, terminating segments of leased lines, over to Market 3a, to retracting the intention to impose an obligation for cost analysed price on Mila for the company's fibre-optic on the relevant markets and to apply instead ex ante an Economic Replicability Test - ERT, and to somewhat slacken the criteria that had been prescribed for deciding which municipalities belong to areas where more competition was considered to pertain such that those areas increased significantly where lighter obligations were to apply. Parties also received the opportunity to express their opinions on PTA plans to adhere to the Administration's preliminary assessment that there was still substitutability between copper and fibre-optic connections and of prior comments of each other on definition of the service markets and on the conclusions of the MMR consumer survey. The substance and conclusions of the additional consultation are presented in Appendix C.

22. The PTA has now processed all of the above specified documentation and comments from stakeholders, and the market analysis has been updated in accordance with the newest information and with the comments that the PTA felt feasible and normal to take into account.

23. The market analysis and Draft Decision on imposition of obligations are then sent to the EFTA Surveillance Authority (ESA) for consultation, see paragraph 1 article 7 of Act no. 69/2003 on the Post and Telecom Administration. Should ESA raise no serious objections to the market analysis and to the PTA Draft Decision then the Decision will be notified to the companies in question.

2 Definition of the relevant markets

2.1 General on definitions of service markets

24. According to article 16 of the Electronic Communications Act no. 81/2003 as amended, the PTA shall define service or goods markets and geographic markets in accordance with the main principles of Competition Law and with obligations according to the EEA Agreement. As has been stated, it is necessary for the PTA to evaluate whether the markets, as defined in the ESA recommendation on the relevant markets, harmonise with Icelandic circumstances. Both the service and geographic markets must be defined before it is possible to assess whether market conditions require the designation of an electronic communications undertaking with significant market power and imposition of obligations.

25. In article 4 of the Competition Act no. 44/2005 a market is defined as a sales area for a product and substitute product and/or a sales area for a service and substitute service. Substitute products and services are defined as products or services that can, wholly or to a significant extent, take the place of other products or services not only on the basis of the objective characteristics of the product in question, the purchaser's intended use of them and their price, but also with respect to competition requirements and/or conditions relating to supply and demand. Products that can compete with one another are therefore called substitute products and each market consists of products that are mutually substitutable.

26. Substitutability can be assessed from two points of view. First, how readily customers believe that one product can be a substitute for another (demand-side substitutability). Second, how easily a competitor of a given undertaking can adapt his production so that his product falls within the market to which a product of the given undertaking belongs (supply-side substitutability).⁸ Demand-side substitutability is considered to be the basis of market definition, while supply-side substitutability is less significant and is more related to assessment of potential competition, which will be covered later in this document in Sections 8 and 9 on assessment of significant market power.

27. The PTA can define other markets than those specified in the ESA recommendation, for example because of special circumstances in this country. In such cases there shall be consultation with ESA. When other markets are to be defined, they need to meet the same criteria as other markets in the recommendation, and they are:

- that there exist high and non-transitory barriers to entry,
- that the market is structured in such a manner that one cannot expect effective competition in the foreseeable future,
- that the application of existing competition law would not on its own suffice to provide remedies where the market has failed.

28. The above specified conditions are in the opinion of ESA, generally in place within the EEA on those service markets here being examined, see ESA recommendation on the relevant markets from 2016.

⁸ See further paragraphs 38-40 in the guidelines and the Explanatory Note to the EU Commission recommendations, Section 2.1.

2.2 Definition of relevant markets, according to ESA recommendations and EU Commission guidelines

29. The service markets being examined here have been defined in the ESA recommendation from 2016 in the following manner:

- a) Wholesale local access provided at a fixed location (given number 3a).
- b) Wholesale central access provided at a fixed location for mass-market products (given number 3b).

30. The PTA point of departure for definition of relevant markets is the definition shown in the ESA recommendation. The PTA must nevertheless assess whether this definition is consistent with national circumstances and where specific types of wholesale service, that are offered in this country, belong within the relevant markets.

31. Markets 3a and 3b in the ESA recommendation correspond to Markets 4 and 5 in the older ESA recommendation from 2008. The markets, however, are not defined in precisely the same manner as before. Specific characteristics of each service are taken into account rather than limiting the market definitions to, on the one hand, passive infrastructure and, on the other hand, active service. Further explanation of this new delineation will be covered later in Section 4. Analysis of Markets 3a and 3b is intended to replace older analyses of Markets 4 and 5.

32. According to Commission guidelines on market analysis and assessment of SMP, the point of departure for all analysis should be assessment of the relevant retail markets with respect to demand-substitutability and supply-side, from the end user perspective and account must be taken of expected developments in market circumstances over the planned duration of validity of the analysis. When the relevant retail market has been defined, an assessment shall be made of whether there is a risk of consumer interests being impaired as a result of lack of competition, if no obligations were in place on the underlying wholesale markets. This is done later in Section 3. If this is the case, the underlying wholesale markets shall be defined, see Section 4 here below.⁹

33. With respect to the markets to be found in the ESA recommendation one should have in mind that a detailed analysis of the general nature of the relevant retail markets and related wholesale markets has been conducted by the Commission as described in the Explanatory Note to the Commission recommendation from 2014. One may therefore presume that the markets listed in the recommendations fulfil criteria that justify the application of obligations. For this reason, it is unnecessary for the PTA to make a special assessment of whether the criteria are fulfilled, unless the Administration specifically considers there to be a need for this as a result of circumstances that differ from those that generally apply in the EEA.¹⁰

⁹ Guidelines, page 4.

¹⁰ See Explanatory Note to the recommendations, page 11.

3 Competition conditions on retail markets for access to broadband service at a fixed location

3.1 General

34. This section covers in detail the conditions on the retail markets for broadband connections and service at a fixed location. The service offer is examined from various aspects, distribution of varying networks and technical solutions and development of demand during recent years. There will be discussion on both service for residential and for non-residential customers with respect to companies for which normal household connections suffice. With respect to quality connections for companies, this will be covered in a separate market analysis of Market 4, pursuant to the ESA recommendation from 2016, and this analysis is currently being made. Taking into account the description of circumstances on the market, the relevant retail markets shall be defined, and this definition will then be the basis for definition of relevant service markets and geographic markets at wholesale level.

35. Internet service has become the electronic communications service of most importance for residential and non-residential customers. Digital media, news-reading and TV consumption has largely replaced print media, and in addition to this, linear transmissions by aerial and communications between people and institutions and companies, and with family and friends, have migrated from traditional telephone calls or TV transmissions to a variety of possibilities which are mostly provided through some kind of web or service provided through the Internet.

36. Larger parties on Internet service retail markets have directed a significant percentage of their marketing activities at packaged solutions or product bundling where all electronic communications services for the home are sold in one package. This is a “triple play” over a fixed line connection which contains: home telephony (often with VOIP technology), general Internet connection and access to TV distribution systems (IPTV) with the rental of the relevant set-top box and included selection of TV material or other kind of visual content. In addition to such triple play bundles, such operators have also added a fourth service, mobile service, thus offering significant benefits to those who purchase all services from a single party.

3.1.1 Access, distribution of electronic communications networks, number of customers and line charge

37. Consumers and companies have in recent years benefited from the fact that the country’s electronic communication networks, both access and trunk line networks have had the capacity to deliver dedicated broadband connections. Some years ago, the Siminn Group built the ADSL service at a relatively fast rate across the whole country. Access for consumers and companies to high-capacity Internet connections has thus been rather good for many years. Competition also developed at this level through local loop leasing with the provision of ADSL service from other parties who competed with the Siminn Group.

38. In the same manner that distribution of ADSL developed rapidly, the Siminn Group also rapidly distributed its VDSL service a few years ago. GR and Tengir have furthermore during the last 10 years or so, developed their fibre-optic networks within their operational territories, as has Snerpa in the West Fjords and Austurljós in East Iceland during recent years. In past years, the Siminn Group has expanded its fibre-optic network coverage to tens of thousands of homes and companies, especially since 2016 and achieved such distribution to almost half of

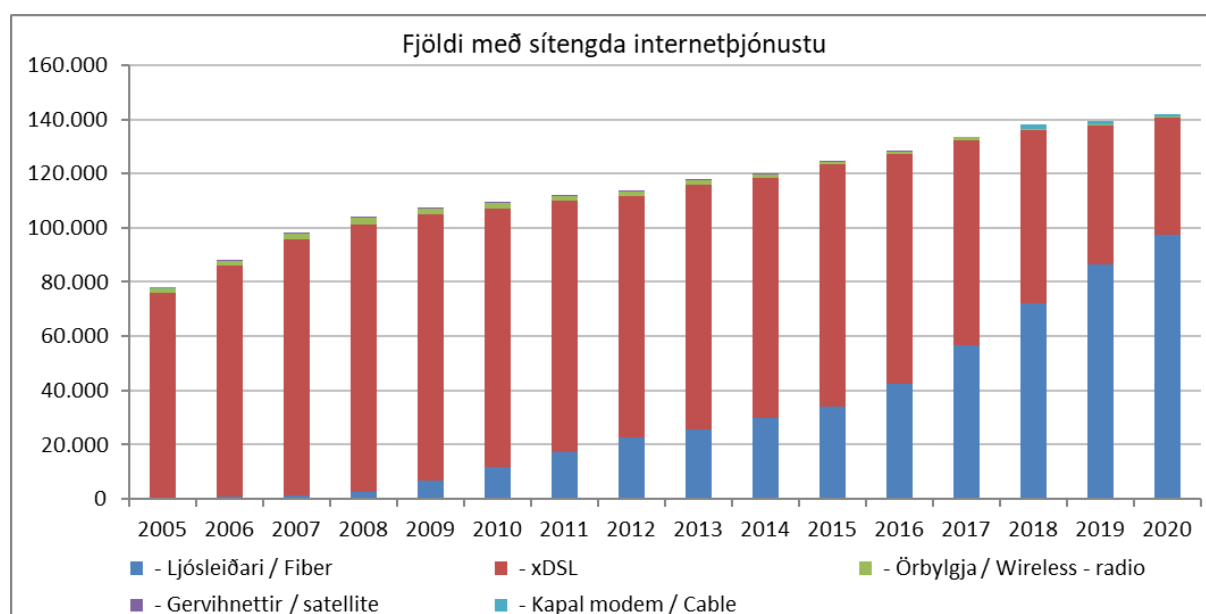
the homes and companies in the country at the end of 2020. For more than a decade, market access to Next Generation Access Networks has been substantial and good.

39. ADSL range with good performance according to the standards of its time, about 12 Mb/s, was one kilometre from the central equipment hosted in telephone exchanges, and connections could be achieved with a cable length of up to eight kilometres. VDSL range is significantly less, within 300 m with full 50 Mb/s performance and about 30 Mb/s when the cable length reached one kilometre. For this reason, equipment for VDSL service is located in street cabinets which are in turn connected to telephone exchange equipment by fibre-optics. Mila has distributed its VDSL system to most urban kernels in the countryside and rural municipalities have received grants from the Telecommunications Fund to deploy fibre-optics to homes and companies. The situation is now such that in the Capital City Area, in large parts of Akureyri and in a number of areas in Northeast Iceland (e.g., Húsavík, Dalvík, Ólafsfjörður and in other larger urban kernels such as Selfoss, Akranes, Borgarnes, Reykjanesbær, Hveragerði, Hella, Hvolsvöllur, Sauðárkrúkur, Ísafjörður and Egilsstaðir, households and companies have access to fibre-optics, as have most rural areas. Almost all other urban kernels have access to VDSL, but it is unclear when, and on what basis (market or state aided) these urban kernels will be converted to fibre-optics.

40. This widely distributed access to dedicated broadband Internet service has led to the level of penetration of such service being among the highest in this country, and one can assume that almost every home is a customer of some service provider that offers high-capacity Internet service, though there can be some variation.

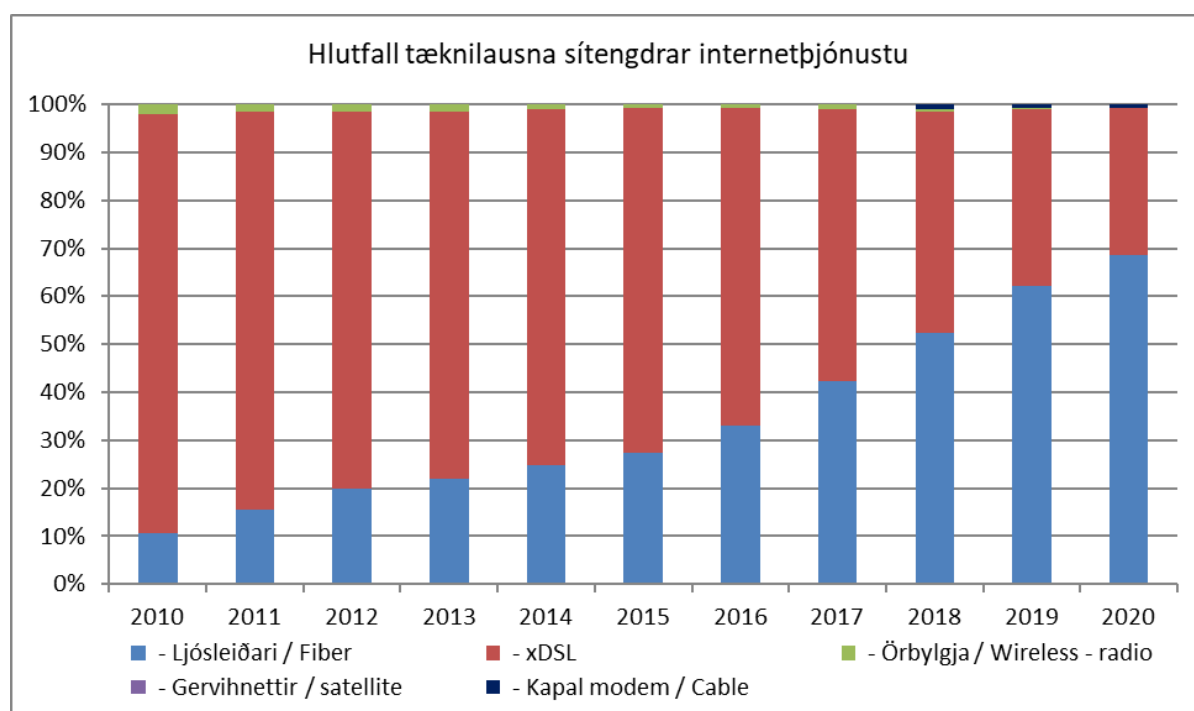
41. As can be seen on the graph here below, there has been an annual increase in the number of customers in Internet service, about 3000-5000, though this declines slightly in 2019. Growth begins to increase again in 2020, when it was about 2500 connections. In all likelihood, one can mostly attribute this growth to an increase in the number of homes in the country, but the penetration is nevertheless increasing. It is worthy of note that the number of customers with a fibre-optic dedicated connection is growing fairly rapidly, while the number with connections that use copper local loops is decreasing. The increase in the number of customers with a connection over fibre-optic has been about 14 - 16 thousand per annum for the years 2017 until 2019. In 2020, this increase has somewhat decelerated, and subscribers with an Internet connection over fibre-optic then increased by a little over 11,000.

Figure 3.1 Number with dedicated Internet service 2005- 2020



Source: Post and Telecom Administration.

Figure 3.2 Proportion of technical solutions for dedicated Internet service 2010- 2020



Source: Post and Telecom Administration.

42. Fibre-optic connections are the technical solution showing the most growth, and competition in retail now revolves to a significant degree around the offer of this service. When districts, streets or parts of towns are connected to fibre-optic and the customer considers upgrading from an xDSL solution through copper local loop to a connection provided through fibre-optic, the opportunity arises to also switch service provider. A significant part of sales

and marketing effort of retail companies is directed at this opportunity, with telephone selling and other localised marketing aimed directly at the homes in question, in addition to the marketing effort which has a wider reach.

43. ADSL connections in use are now rather few after Mila embarked on rapid distribution of VDSL solutions across the country during the years after 2011, which was mostly completed in 2015. ADSL connections in use at the end of 2020 were just under 4000 of 144,000 bitstream connections in use, which represents 2.6%. At the same time, bitstream connections over VDSL were about 39,000, i.e., 27% of bitstream connections in use and bitstream connections over fibre-optic are about 101,000, which represents about 70%. It is clear that customers switch easily and rapidly from ADSL to VDSL. One can assume that the Internet service companies have also actively marketed connection upgrades to their own customers to prevent them from otherwise switching to another service provider.

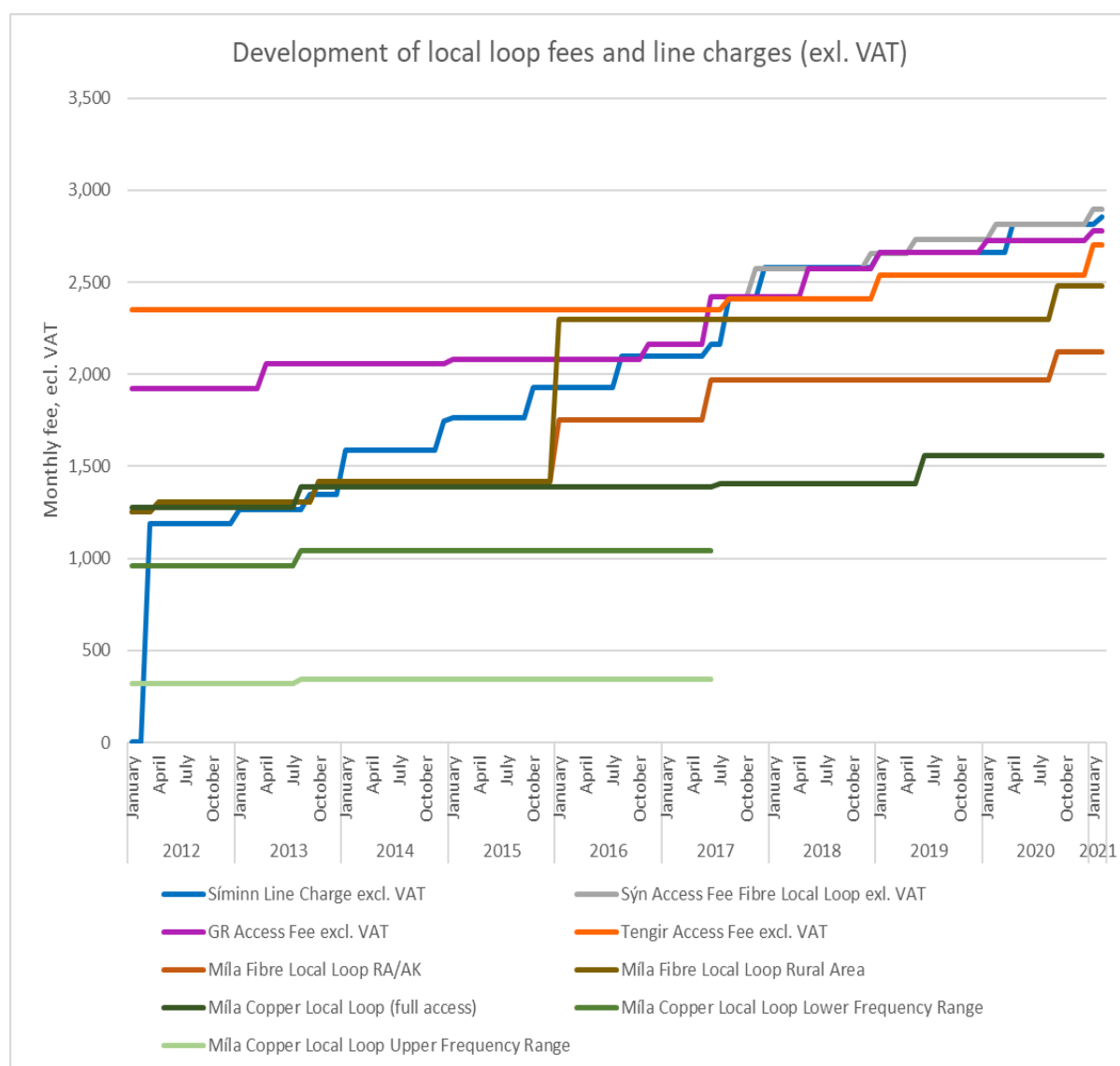
44. As previously stated, ADSL was offered for a considerable period of time with 12 Mb/s capacity. VDSL entered the market with 50 Mb/s capacity, upgradable to 100 Mb/s with vectoring, and Mila has activated this technology for a large proportion of the company's VDSL connections. The GR fibre-optic connection entered the market with 100 Mb/s capacity which was later upgraded in some areas to 400 and 500 Mb/s, and after 2015, GR embarked on a structured upgrading of connections for all of its customers to 1000 Mb/s, i.e., 1 Gb/s. Mila also started its offer of fibre-optic connections at 100 Mb/s but has upgraded to 1 Gb/s.

45. The purchase of dedicated Internet service entails additional cost in the form of line charge/access charge which is collected at retail level. The cost item collected by the retailer in question through these charges is partly to cover the wholesale cost of the access network through which the Internet service is provided. This arrangement seems to be a specifically Icelandic phenomenon, or it is at least not common in Europe. The charge in question is an inescapable factor for the customer in question to have an active connection, as the situation is in this country, and is not part of the price advertised for general Internet service, as the line charge also provides open access to traditional plain old telephone service (POTS, PSTN) and to TV distribution through a dedicated connection (IPTV), so it cannot be solely attributed to the Internet service.

46. When GR commenced its services, the company collected what were called access charges directly from the homes that took out subscriptions with Internet retailers. The access charge in question can be equated to part of the wholesale price, including local loop leasing, which formed the final retail price of the service provided through the Siminn copper network. Retailers on the GR network could therefore price their service lower, to the equivalent of the access charge. The service provided over a fixed line network, whether it is copper or fibre-optic, is varied and it is not possible to allocate all of the wholesale cost, particularly the local loop cost, to one service. Siminn therefore changed its charging and created a charge item called line charge in 2012 at the same time as the subscriptions for home telephones were restructured. In 2017, retailers of GR network connections began to collect the GR line charge themselves from their customers.

47. The retail price of line charges has gradually increased during the past years and one may consider it likely that companies with a strong position on the market for retail telephony and Internet service, generate gross profit through the difference between the retail price for line charges and the wholesale price for local loop lease.

Figure 3.3 Development of local loop lease and line charges 2012- 2021



Source: Post and Telecom Administration

48. The wholesale charge that lies behind line charges is subject to price control with respect to the Mila copper network, and this Mila local loop lease is cost analysed and subject to endorsement by the PTA. The Mila local loop price for fibre-optic network is not subject to price control, but other obligations such as on access and non-discrimination are in force. Wholesale charges for other access networks such as those of GR, Tengir or local fibre-optic networks are not subject to price control.

3.1.2 Supply, price, and market share on the retail market

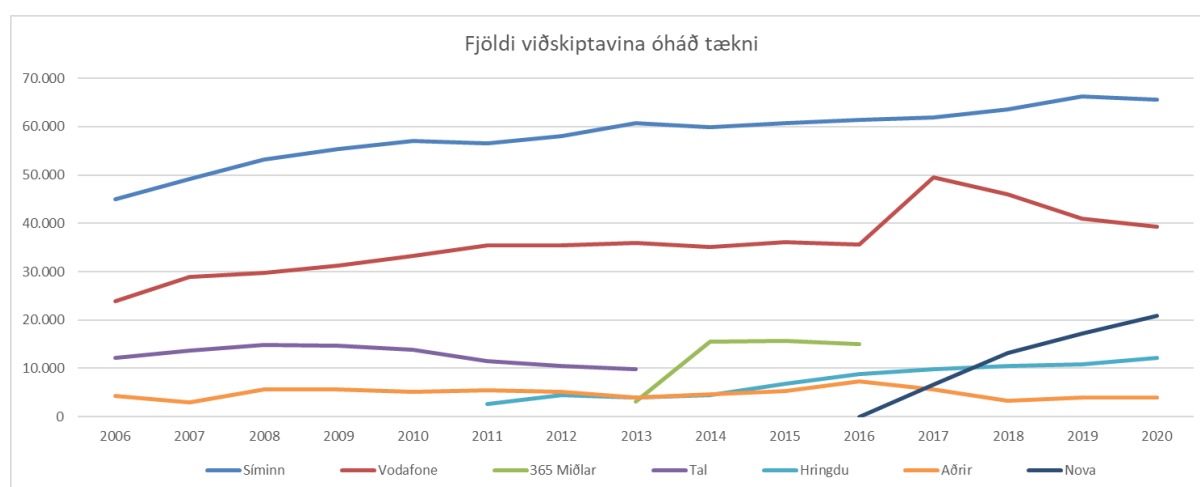
49. The retail market that the relevant wholesale markets serve are first and foremost retail of Internet access and related services provided over bitstream, i.e., distribution of television services over IP (IPTV) and IP telephony (VoIP). In the following subsections there will be discussion on the status on the relevant retail markets, among other things development of

market share of the main companies, pricing policy etc. and an assessment will be made of possible developments during the lifetime of the analysis.

3.1.2.1 Market share

50. Siminn is the largest company on the Internet service market with over 65,000 customers and the share of just over 46% at the end of 2020. The number of customers of the company has remained fairly stable in recent years. The company's share has decreased slightly from about 52.7% at the end of 2006 to 46.3% at the end of 2020, which is about 6.4% percentage points over a period of 15 years which is just over 0.4% per annum.

Figure 3.4 Number of customers, technically agnostic, at year end 2020



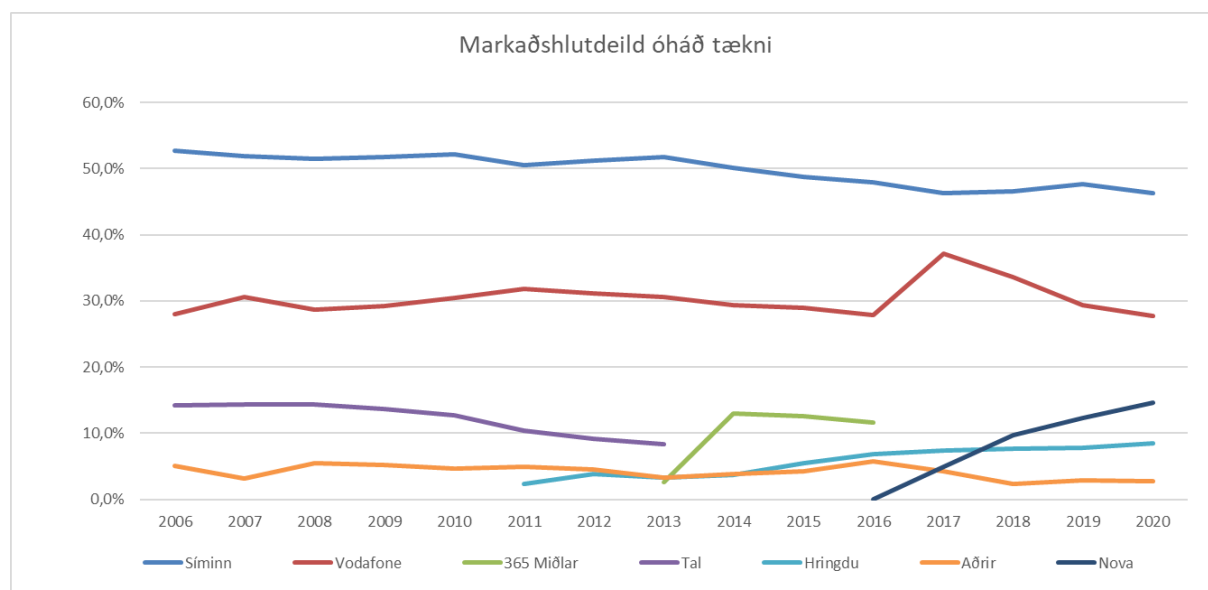
Source: Post and Telecom Administration.

51. Sýn (Vodafone)¹¹ has been the second largest company during the same years. At the end of 2017, the company's purchase of 365 Miðlar broadcasting and electronic communications services was completed, and the company's market share increased accordingly. It is interesting to note that the company was not able to retain this gain, and market share decreased by 2.7 percentage points in the year 2018, by 4.2% in 2019 and by 1.7% in 2020, and stood at just under 28% after having been 37% at the end of 2017.

52. Nova which operated for a long time on the mobile phone market, has grown rapidly in recent times, but in fixed line connections the company first and foremost offers Internet service over the Gagnaveita Reykjavíkur fibre-optic network, but does however offer some services over xDSL (DSL other than ADSL or VDSL) and over the Mila GPON network, first and foremost with specialised solutions for the corporate market. Nova commenced this service early in 2016 and the company's share was just under 15% at the end of 2020.

¹¹ From this point on, the electronic communications services of Sýn will be referred to by its trademark name, Vodafone.

Figure 3.5 Market share, technically agnostic, at year end 2020



Source: Post and Telecom Administration.

53. Hringdu grew steadily for the first 5-6 operational years and in recent years has held fairly stable but growing market share at just over 7%, where the company had reached 8.6% market at the end of year 2020.

54. A number of smaller companies operate on the Internet service retail market, but their share is very small, a total of 2.8%. The share of smaller companies has declined in recent years, which for a long time had been stable at just under 5%.

55. The retail market for Internet service is therefore characterised by large companies which offer packaged solutions or product bundles, Siminn and Vodafone where television service is the main selling point of the bundles in question. In recent times, Siminn has held its ground quite well, and that is despite the powerful entry of Nova, while Vodafone has been losing significant market share. Nova bundles its Internet service and mobile phone service and specifically advertises that separate IPTV distribution of TV service is not necessary and that various OTT (over the top) solutions suffice, as the company does not have such IPTV service in its product offer, as do Siminn and Vodafone. Nova offers an OTT solution called NovaTV in smart devices and through AppleTV sets.

56. Siminn is the only electronic communications company in the country that offers service with close to national coverage. Vodafone offers service in the Capital City Area and at very many locations in the countryside. Nova and Hringdu offer first and foremost service in the Capital City Area and widely in Southwest Iceland, and also in larger urban kernels in the countryside. A number of local service providers offer service first and foremost in their local territory, such as Snerpa in the West Fjords, Kapalvæðing in Reykjanesbær and Tölvun in the Westman Islands.

3.1.2.2 Síminn

57. Síminn offers its Internet service independent of speed of connection or access network, i.e., whether the connection is received through VDSL or GPON connections from its subsidiary Mila¹². The pricing depends however on the data volume the customer has included for use per month. Such pricing has been the norm in Internet service in Iceland for many years, from the time that dedicated connections replaced dial-up connections through modems. The reason for this is that one of the main cost items in Internet service in this country is data volume rather than the connection's bandwidth. This particularly applied to volume of data from abroad during the years at the turn-of-the-century, when connections by submarine cable and data connections with the international Internet were particularly expensive. It was the practice to separately measure data volume brought from abroad, but in recent years, all data volume is measured, both upload and download, within the country and abroad.

Figure 3.6 Síminn tariff for domestic Internet service

Netið heima	
Línugjald 3.540 kr./mán og netbeinir 900 kr./mán. eru innifalin í verði.	
∞ Endalaust ásamt línugjaldi og netbeini	12.040 kr./mán. →
📶 500 GB ásamt línugjaldi og netbeini	10.340 kr./mán. →
📶 50 GB ásamt línugjaldi og netbeini	9.440 kr./mán. →

Source: Screen shot from: “[https:// www.siminn.is/internet](https://www.siminn.is/internet)” 24.02. 2021.

¹² For the longest time, Síminn did not provide services over the GR network. Síminn and GR did however make an agreement on Síminn access to the GR network in July 2020. The intention was for Síminn service to be available over GR fibre-optic early in 2021, but Síminn's services on GR's network were not activated until 25 August 2021. Tengir has also made approaches for Síminn providing service through the Tengir bitstream system, but an agreement has not yet been reached. On the other hand, Síminn provides service to the Mila bitstream system in the Tengir operational territory, over the Tengir fibre-optic network, and Mila leases dark fibre on the Tengir fibre-optic local loops.

58. Figure 3.6 shows a screen shot from the Siminn web page taken 24.2.2021, which lists service options and prices for Siminn Internet service. As can be seen, the price for the Internet service itself is dependent on the data volume that may be used each month, while the line charge and rental of network router are a fixed amount. Siminn has recently begun to advertise an inclusive price for Internet service, with router and line charge combined. The Siminn price for Internet service without line charge and router is thus ISK 5000 for 50 Gb/s, ISK 5900 for 500 Gb/s and ISK 7600 for unlimited Internet.

3.1.2.3 Vodafone

59. Vodafone also applies the policy in pricing of its Internet service such that the price is independent of the capacity of the access network and instead is based on included data volume per month. There, as with Siminn, unlimited Internet is the most expensive. The price of Vodafone Internet service itself is not dissimilar to that of Siminn, but Vodafone is slightly less expensive on the basis of included data volume. Vodafone's access charge (line charge) is however ISK 50 higher than that of Siminn and the cost of renting a router is ISK 90 higher.

60. Figure 3.7 here below shows a screen shot from the Vodafone web page taken on 24 February 2021, which lists service options and prices for Vodafone Internet service. Rental of a router at ISK 990 is not shown in the picture and in addition to this there is a line charge of ISK 3590 added to the published monthly price for Internet service in the column on the far right.

Figure 3.7 Vodafone tariff for domestic Internet service

Internetþjónusta		
ÞJÓNUSTA	STUTT LÝSING	MÁNAÐARGJALD
Internet	Hraði: 1.000 Mb/s* 100 GB gagnamagn Aðgangsgjald (3.590 kr./mán.)**	4.490 kr.
Internet	Hraði: 1.000 Mb/s* 500 GB gagnamagn Aðgangsgjald (3.590 kr./mán.)**	5.490 kr.
Internet	Hraði: 1000 Mb/s* Ótakmarkað gagnamagn Aðgangsgjald (3.590 kr./mán.)**	7.490 kr.

*Gagnahraði er allt að 1000 Mbit/s samhverfur hraði, þ.e. sami hraði í upp- og niðurhali. Til að fá mesta hraða þarf nýjasta netaðgangstæki frá Gagneveitu Reykjavíkur og Vodafone HG 659 netbeini. Ef þessi tæki eru ekki til staðar er gagnahraðinn allt að 100 Mbit/s. Fyrir viðskiptavinum utan ljósleiðaravæðis er alltaf er boðið upp á mesta hraða sem mögulegur er á línu viðskiptavinar, allt að 100 Mbit/s niðurhal og 25 Mbit/s upphal á ljósneti og allt að 12 Mbit/s á ADSL tengingu.

**Aðgangsgjald bætist við mánaðargjald.

Source: Screen shot from: "<https://vodafone.is/adstod/verdskra/internet/internet/>" 24.02. 2021.

3.1.2.4 Nova

61. The same applies to Nova pricing as to that of Siminn and Vodafone, that the price depends on included data volume. Now the prices are similar to those of Siminn and Vodafone,

but they are a little lower than Siminn's for comparable data volume. Nova's line charge and router rental are similar to those of Siminn and Vodafone. As there is no connection with GR fibre-optic, Nova offers its 4.5G mobile phone service through a Wi-Fi router for Internet connections for the household. Nova has not provided service over Mila fibre-optic, but the company has used the Mila xDSL system to some extent on the corporate market.

62. Figure 3.8 here below shows a screen shot from the Nova web page taken 24 February 2021, which lists service options and prices for Nova Internet service.

Figure 3.8 Nova tariff for Internet service for households

500 GB		Ótakmarkað	
Netnotkun	5.490 kr.	Netnotkun	7.490 kr.
Gagnaveitan	3.490 kr.	Gagnaveitan	3.490 kr.
Leiga á ráter	990 kr.	Leiga á ráter	990 kr.
9.970 kr. / mán		11.970 kr. / mán	
Kaupa		Kaupa	


Source: Screenshot from: "<https://www.nova.is/netid/ljosleidari>" 24/02/2021.

3.1.2.5 Hringdu

63. Hringdu is the smallest of the four companies that have market share in excess of 5%. The company takes another approach and differentiates itself from the other three by having varying price depending on the capacity of the connection. Connections with lower speed, 50 Mb/s, are the least expensive on offer.

64. Figure 3.9 here below shows a screen shot from the Hringdu web page taken 24 February 2021, which lists service options and prices for Hringdu Internet service.

Figure 3.9 Hringdu tariff for domestic Internet service



INTERNET FARSÍMI FE

50 Mb/s

100 GB

Hraði

50 Mb/s

Niðurhal

100 GB

Upphal

Ótakmarkað

☐ Leiga á netbeini

990 kr.

Velja

6.500 kr.

Með aðgangsgjaldi

50 Mb/s

ÓTAKMARKAÐ

Hraði

50 Mb/s

Niðurhal

Ótakmarkað

Upphal

Ótakmarkað

☐ Leiga á netbeini

990 kr.

Velja

8.000 kr.

Með aðgangsgjaldi

500 Mb/s

ÓTAKMARKAÐ

Hraði

500 Mb/s

Niðurhal

Ótakmarkað

Upphal

Ótakmarkað

☐ Leiga á netbeini

990 kr.

Velja

9.000 kr.

Með aðgangsgjaldi

1000 Mb/s

ÓTAKMARKAÐ

Hraði

1000 Mb/s

Niðurhal

Ótakmarkað

Upphal

Ótakmarkað

☐ Leiga á netbeini

990 kr.

✓

7.980 kr.

Með aðgangsgjaldi

Source: Screen shot from: “<https://hringdu.is/internet/>” 24.02. 2021.

65. One could consider that the Hringdu pricing policy is characteristic of a maverick, that is to say a company that tries to distinguish itself from the larger companies on the market by breaking the mould and going against the norm.

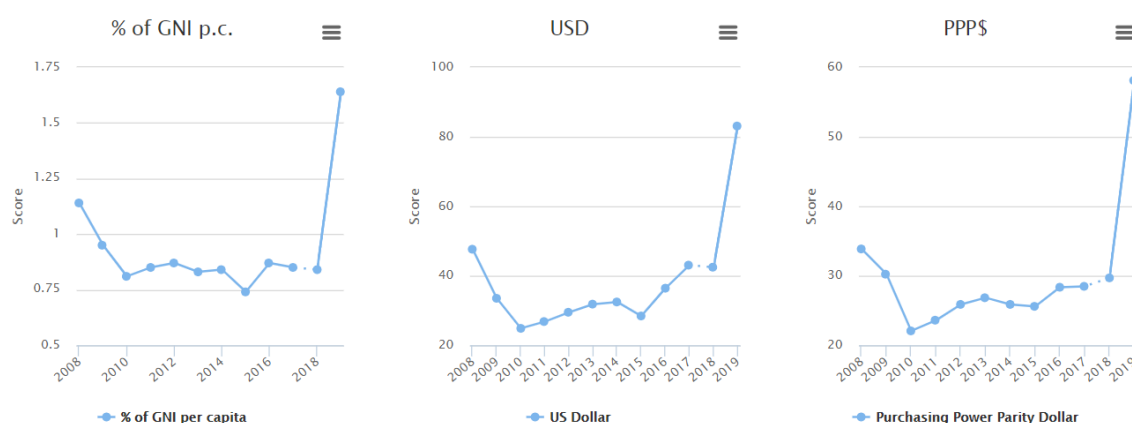
28

3.1.2.6 In general on prices, price development and pricing policy

66. One can consider Internet service to be in essence a kind of raw product. Each company has adequate technical quality, so customers make hardly any distinction in this respect. A consumer survey that the PTA commissioned in October 2020 shows that customers are generally satisfied with the quality of the connections, while 15% of respondents were not satisfied. Consumers also do not discern lack of performance, as only 16% of respondents said they did. Pricing on the retail market does not indicate that any of the companies consider they can charge a higher price where they differentiate themselves on the basis of greater quality, at least not to any significant degree. If one were to draw such a conclusion, then it would mainly be Siminn that thinks it can charge a slightly higher price and that competitors should charge a lower price. The price difference is, however, insignificant.

67. Competition on the retail market is on the other hand mostly in bundling, where Internet service is one component of the bundle. A discount from “list price” in the case of bundles is one feature in making it attractive and can lead to list prices for Internet service being higher than they might have been otherwise. There will be further discussion on bundling in Sections 3.1.2.8 – 3.1.2.13 here later.

68. The price of a basket of various electronic communications services for homes and companies in this country has generally performed well in international comparison. On the other hand, the ITU price comparison which the PTA has taken into account in recent years has not shown that retail price for Internet service, is particularly low in this country. In 2016, the conclusion with respect to Internet service with 1 GB data volume, when one considers purchasing power (PPP\$) and including tax, was that Iceland was in 22nd place of 44 European states. From 2017 the reference has been 5GB included data volume, and Iceland was in 16th position that year, in 15th position in 2018 and then in 41st position in 2019, which was when ITU began to include the line charge as part of the price of Internet service. Iceland is thus one of the most expensive countries in Europe for 5GB Internet service on the basis of the criteria used in the ITU price survey.



Source: <https://www.itu.int/net4/itu-d/ipb/>

69. The PTA considers it normal to include the line charge when considering the price of Internet service, as it is unavoidable to pay the line charge in order to receive Internet service. The line charge is not specifically separated in many states and comparison between countries therefore does not give a true picture if the line charge is excluded in the benchmarking. The

PTA requested information on-line charges from its sister institutions in the Nordic countries, and the conclusion in this collection of information was that line charge was hardly known in the Nordic countries. This was mainly practised in a number of countryside networks in Sweden, but the charge seems to be on the way out, among them. The main rule in these countries appears to be that the costs incurred for local loop lease is collected directly through the retail charge for each service. The PTA therefore considers that the ITU survey, as it is conducted today, provides indications that competition is not exerting downward pressure on the price of Internet service in retail in this country.

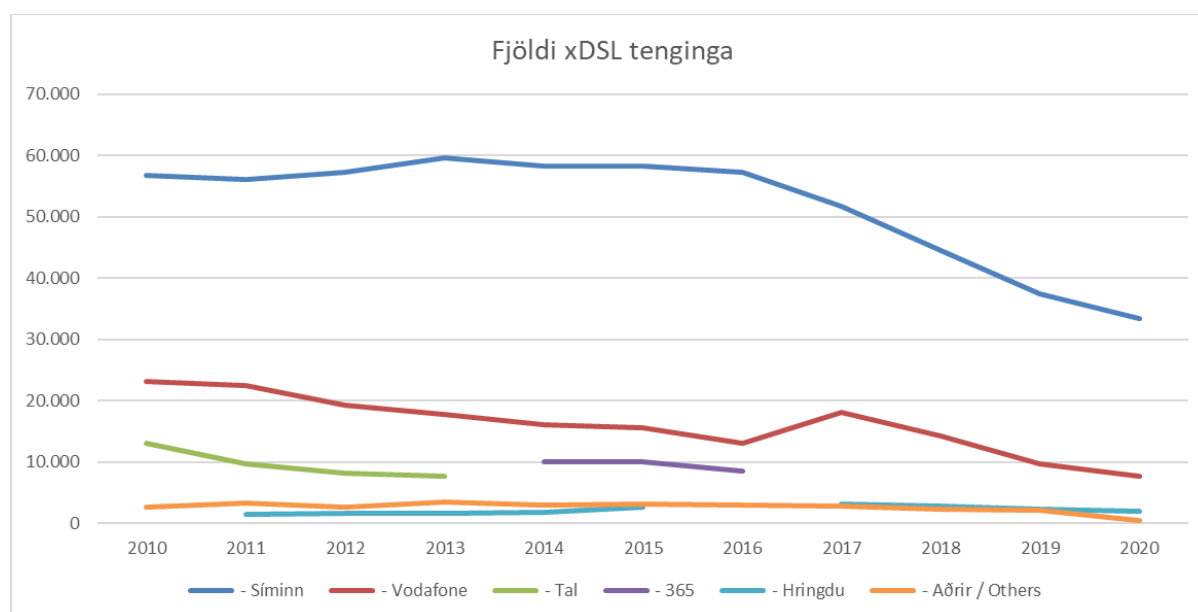
3.1.2.7 Company share by varying access technology

70. Dedicated connections with xDSL technology were the first connections of this nature on the market, first ADSL and then VDSL. Throughout the years Siminn has been the most prolific on this market shelf, as it has not offered its Internet service through the bitstream system operated by Mila's largest competitor, i.e., GR.¹³ By the same token, Mila itself is the only party that offers xDSL service in wholesale. Vodafone operates its own ADSL system, but one may consider this to be on the way out and at the end of 2020 there were only about [...] connections. A few years ago, Vodafone made a decision to concentrate rather on selling Internet connections through the GR fibre-optic system and Access Option 1 with Mila, which is bitstream access, rather than leasing local loops. Vodafone has pointed out that the reason for this is that there had not been space in Mila street cabinets when the Siminn Group began VDSL rollout in earnest in 2011, which was mainly completed in 2015. Vodafone has therefore been forced to descend the investment ladder and switch to mostly bitstream access instead of local loop access. Vodafone also sells Internet connections to some extent through the Mila fibre-optic network. So, one could say that Vodafone had descended some rungs on the investment ladder. During the last three years, after Mila commenced vigorous development of its fibre-optic network in the Capital City Area in 2016, it seems that Siminn conducted a deliberate sales and marketing campaign to offer its customers a switch to the Group's fibre-optic network. One can see in figure 3.10 that the Siminn xDSL connections decline significantly from the year 2016, while at the same time, the number of Siminn fibre-optic connections rises sharply, see figure 3.11 here below.

71. In figure 3.10 it can be seen that there is a considerable increase in the number of Vodafone xDSL connections in 2017, which can be attributed to Vodafone's purchase of 365 Miðlar. It is interesting to note that Vodafone does not seem to retain 365 Miðlar customers who were connected through xDSL as can be seen in figure 3.10 here below, which shows a reduction in xDSL connections in 2018 which is continued in the years 2019 and 2020. Nor does it seem that Vodafone succeeded in migrating these customers over to the GR fibre-optic network, as figure 3.4 here above shows a decrease in Vodafone Internet connections from 2017 and throughout 2020 (technically agnostic). In this connection it should be remembered that 365 Miðlar resold Siminn IPTV service on those connections and this may possibly have been a factor.

¹³ As previously stated, and as will be discussed later in detail, Siminn made an agreement with GR on bitstream access to the GR network on 1 July 2020, and that access was activated on 25 August 2021.

Figure 3.10 Number of xDSL connections from 2010-2020



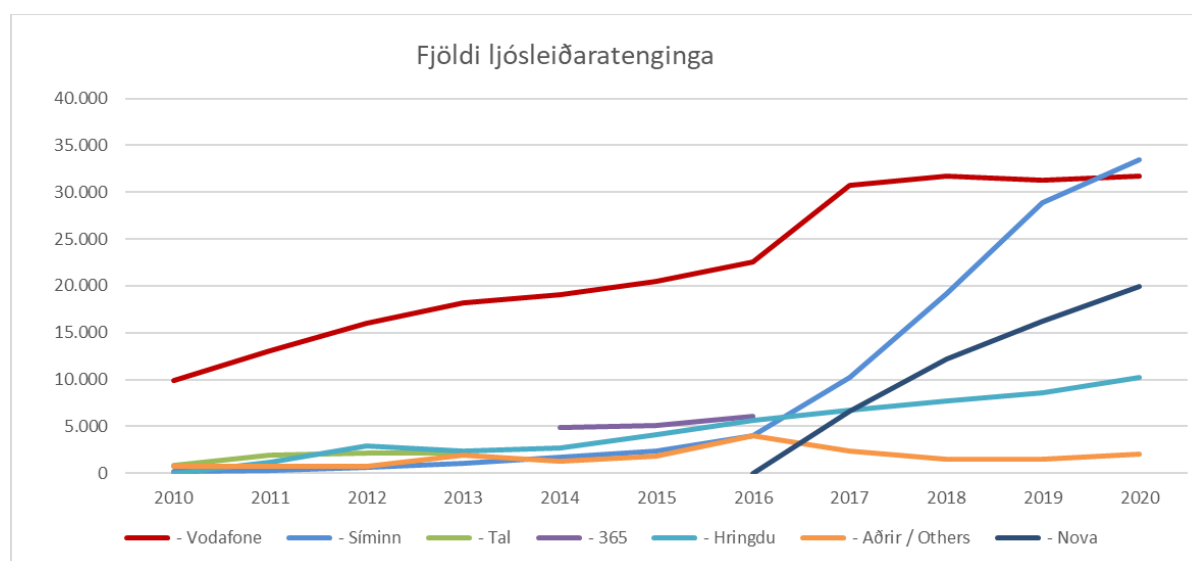
Source: Post and Telecom Administration.

72. Since the launch of the GR fibre-optic network, Vodafone has directed a significant part of its sales and market effort at connections over the network. This is evidenced in the company's percentage statistics for the number of Internet connections through fibre-optic as can be seen in figure 3.11 here below. Vodafone has however increasingly used connections in the Mila fibre-optic network, but the majority of the company's connections are nevertheless still on the GR network.

73. From the data collection from the electronic communications companies, one can see that at the end of 2020, Vodafone has just under a [...] % share of Mila VDSL connections and about [...] % of the company's GPON connections. On the connections where a retailer's Internet service is received through Mila, it is possible that the customers of this Internet service provider choose to receive Siminn IPTV service, as is e.g., common with customers of smaller operators who do not have their own IPTV service to offer. The same applies to customers of Vodafone Internet service provided through the Mila system, as they can choose to have Siminn IPTV service through the connection.

74. As can be seen in figure 3.11 here below, Nova has made rapid progress in increasing fibre-optic connections since the company began to offer these connections in 2016 and had achieved just under 15% at the end of 2020. It is worthy of note that Siminn is the company that shows the fastest growth in fibre-optic connections from that time. Growth was significant from the end of 2016 until the end of 2017, about 8000 connections, and even greater in 2018, at about 9000 connections, and then well over half of all the increase in the number of customers over fibre-optic local loops. It is also worthy of note that growth was again significant in 2019, at something over 10,000 connections and about 2/3 of the total increase. Growth in 2020 is thus about 4000 connections. Of the retailers of Internet service, Siminn has the greatest growth in the period in question on the market, which is showing greatest growth, i.e., fibre-optic connections.

Figure 3.11 Number of fibre-optic connections from 2010-2020



Source: Post and Telecom Administration.

3.1.2.8 Bundles in retail Internet service

75. There is a long-standing practice among electronic communications companies to offer their products in special offer packages, where a variety of services is offered in a bundle at one price, and often at discount terms when compared to purchasing each product separately. The weighting of such packages has increased considerably in recent years, as is the case elsewhere in Europe.

3.1.2.9 Siminn's Heimilispakkinn (home package)

76. After Síminn merged fully with the SkjáEinn TV station and migrated subscriptions to linear TV station to a non-linear content provider under the trademark "Sjónvarp Símans Premium" (hereafter abbreviated to SSP), the company marketed a bundle in October 2015 under the trade name "Heimilispakkinn" (Home Package) where three electronic communication services, i.e. home telephone, Internet service and IPTV were sold at one price with the media content of SSP also included. In the summer of 2019, English football was then added to the Heimilispakkinn and Siminn has the transmission rights to this popular TV material until the summer of 2025. The media content was the main product in marketing Heimilispakkinn and was the focus of its advertising. In addition to this, Siminn commenced the offer of what is called "times 10" a few years ago through Heimilispakkinn, where up to 6 members of the household of the subscriber receive 10 times the data volume over mobile phone that it purchases with the relevant mobile phone subscription with Siminn.

77. With the PTA Decision no. 10/2018, dated 3 July 2018, the Administration came to the conclusion that Siminn had breached the prohibition provision of paragraph 5 of article 45 of the Media Act no. 38/2011, which prohibits a content provider from directing its customers' trading to a related electronic communications company, and subsequently imposed an administrative fine of ISK 9,000,000 on the company, where the maximum fine is ISK

10,000,000. On 1 October 2015, Siminn discontinued distribution of Siminn non-linear visual content through the Vodafone system. Non-linear visual content is what is known generally as video on demand (VOD), such as time shift, *Frelsi* (pay as you go) and video rental. From that time and until August 2018, such service was not available to Vodafone customers, as was the case at that time. Those consumers who chose to purchase access to the Siminn non-linear visual content (SSP) therefore needed to have a set-top box from Siminn and to access the content through the Siminn IPTV system. Subscription to the content was therefore only on offer through the Siminn TV distribution system and also only through the electronic communications network of the Siminn subsidiary, Mila, and e.g., not through the GR electronic communications network, the company that has operated the country's largest fibre-optic network. The tens of thousands of users that used the GR fibre-optic local loops as a carrying layer and who were customers of Vodafone, Hringdu, Nova and of other companies, could therefore during the period of time in question, not access this content.

78. The PTA came to the conclusion that Siminn had not demonstrated a genuine wish to negotiate with Vodafone in order to come to an agreement on a solution to TV distribution during the period in question. It was furthermore the conclusion of the Administration that Siminn could, to some extent, have limited the damaging impact that the measures in question would have had on GR in competition with Mila on the market for the underlying electronic communications network, by making an agreement on access to the GR fibre-optic network before Siminn embarked on the changes in question. With respect to this aspect of the case, it would have been the conclusion of the PTA that Siminn had not during the period in question, submitted a fair and normal request for access to the GR network¹⁴. Even if Siminn had moved its IPTV service over to the GR network, that on its own would not have sufficed to have prevented the infringement, because non-linear visual content would still have only been distributed through Siminn IPTV system and set-top boxes. In this manner the Siminn infringement in question would to a certain extent have been transferred to the GR network.

79. In the Decision in question, it was stated that in comments to the bill which became the Media Act referred to above, it was stated that the provision was intended to enable consumers to choose both visual content and an electronic communications company, without binding themselves to one specific company, by preventing a company which controlled both visual content and electronic communications networks from misusing its position. The objective was furthermore to break up vertical ownership of material and distribution as there could be an incentive for individual media service providers to try to direct their customers to a related electronic communications company. The provision was included in the Media Act for a specific reason, among other things because of the strong position of IPTV distribution in this country where most households used such technology to access visual content, and both Siminn and Vodafone operate such TV distribution. It was the PTA conclusion that the customers of electronic communication companies other than Siminn, had from 1 October 2015 faced the reality that their access to the visual content in question was limited in such a manner that they could not access it without switching electronic communications company or connecting to more than one electronic communications network.

80. Siminn appealed the above specified PTA Decision no. 10/2018 to the courts. With a judgement of the District Court of Reykjavik from 1 July 2020, the court confirmed the PTA conclusion on the Siminn infringement of paragraph 5, article 45 of the Media Act in question,

¹⁴ Siminn considered that it had shown willingness to negotiate with GR, but that GR had only offered Siminn bitstream access while Siminn had requested access to GR dark fibre.

but nevertheless on amended grounds. This judgement will be described in more detail in Section 10.2 on competition problems here below.

81. In August 2018, Siminn introduced the OTT solution, i.e., a TV distribution system through the Internet (streaming service) which the company claimed was independent of electronic communications networks. Vodafone, GR and Nova considered that despite this solution, Síminn's infringement was still active. With the PTA Decision no. 27/2019, dated last 25 November 2019, the Administration came to the conclusion that Siminn had repeated its prior infringement until 1 October 2019. By making a specific set-top box that was sold by the electronic communications part of Siminn a condition for the OTT solution, the media service part of Siminn continued to direct the trading of its customers to a related communications company. Siminn had on the other hand, engaged in negotiations with Vodafone, among others, during the summer and autumn of 2019 on the distribution of content and had thus demonstrated a certain willingness to reach an agreement, even though such agreements had not been finalised. It would however, in the opinion of the PTA, not have been possible to consider that the situation in question was entirely the responsibility of Siminn after 1 October 2019, as Siminn had from and including 2 October 2019, at least tried to mitigate the infringement and it was not possible to consider Siminn to be in breach of the rules from that point in time. The PTA therefore imposed once again an ISK 9,000,000 administrative fine on Siminn for the repeated infringement.

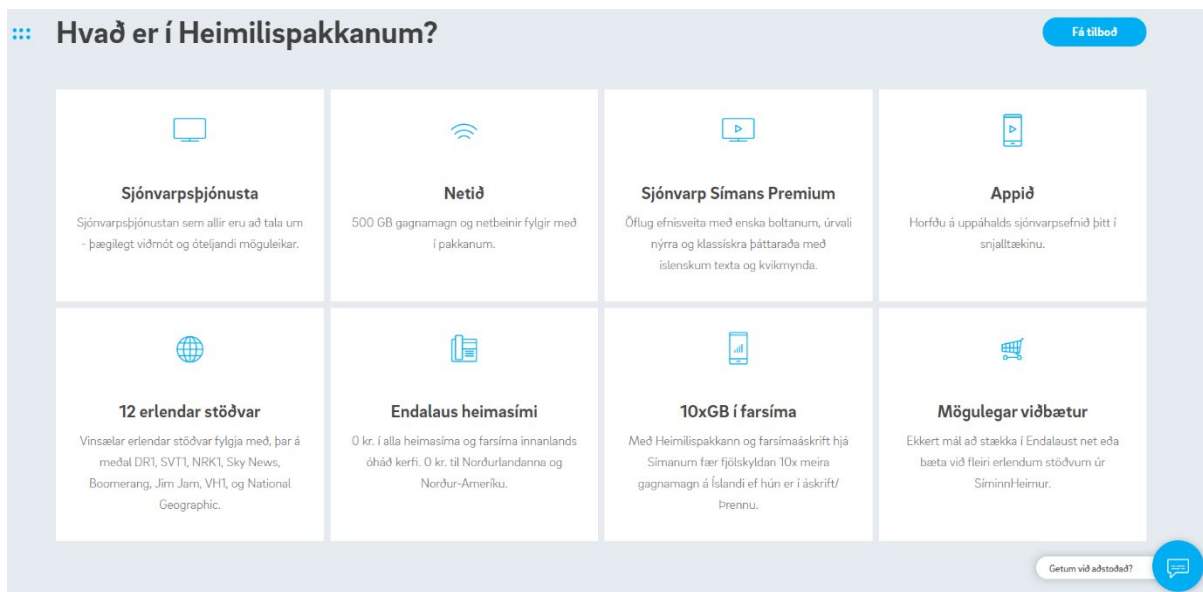
82. Siminn appealed the above specified decision to the Appellate Committee for Electronic Communications and Postal Affairs, and with its ruling no. 7/2019, dated 6 November 2020, the Committee rescinded the above specified PTA decision, as the Committee considered that there had been a lack of investigation and arguments on specific factors on the part of the PTA. This ruling will be described in more detail in Section 10.2 on competition problems here below. The PTA and Vodafone has now appealed the ruling in question from the Appellate Committee to the courts and the company considers that the above specified PTA decision had been correct in all respects except that the Siminn breach still continues and had not ended on 2 October 2019, which was the conclusion of the PTA.

83. According to the above, the duration of the Siminn infringement of the provisions of the Media Act spanned almost 3 years. During that period the number of subscribers to the Siminn Heimilispakkinn increased dramatically and as previously stated, Siminn began offering Heimilispakkinn in 2015. Siminn states that 60% of the company's Internet customers use the Heimilispakkinn. In mid-2020, Siminn had 65,970 Internet subscriptions, of which about 40,000 used the Heimilispakkinn.

84. As previously stated, Siminn began offering Sjónvarp Símans Premium and English football through an OTT solution, i.e., "Siminn TV - network neutral", from August 2018. The service has been subject to the condition that one must lease a specific set-top box from Siminn to be able to use the TV service in question. For some time, there was very little uptake of this network neutral service. According to the newest figures as of end of year 2020, there were [...] Siminn customers using this solution while 56,824 were using the Siminn IPTV solution. This covers all of those who are using Siminn TV service, i.e., TV distribution through these set-top boxes, regardless of whether they are subscribers to some TV service, such as SSP or English football. It is therefore clear that the proportion of those using the OTT solution is low relative to those who are using the IPTV solution. As stated previously, Siminn made an agreement with GR on access to that company's bitstream service in July 2020, and it is expected that Siminn service, including Internet service and TV service, will be active on the GR fibre-optic network in the latter half of 2021.

85. The price of the Heimilispakkinn package is ISK 15,500 apart from a line charge of ISK 3,540, which is a total of ISK 19,040. Heimilispakkinn does not include a mobile phone subscription but if members of a household subscribe to Siminn mobile phone service, the free data in the mobile phone subscriptions in question is multiplied by 10 for up to six family members. Figure 3.12 shows a screen shot of the Siminn website from 24 February 2021 where Heimilispakkinn is described.

Figure 3.12 Siminn presentation of the content of the Heimilispakki



Source: Screen shot from: "https://www.siminn.is/heimilispakkinn" 24.02. 2021.

3.1.2.10 Fjölskyldupakkinn (Family package) at Vodafone

86. Vodafone offers the bundle "Fjölskyldupakkinn" (Family package) for 19,990 ISK in a month. Figure 3.13 shows a screenshot of the Vodafone website from 24 August 2021 where the bundle is described. The bundle contains TV subscriptions to Stöð2 and Stöð2+, two mobile subscriptions with unlimited data volume, as many kids cards as needed (mobile phone subscriptions for children with limited data volume), unlimited internet, internet router, set-top box and installation of equipment, as well the line rental. Additional TV subscriptions can be added to the package at an appropriate cost.

Figure 3.13 Vodafone presentation of Fjölskyldupakkinn (Family Package)

The screenshot displays the Vodafone Family Package (Fjölskyldupakkinn) on a red background. It is divided into three main sections: **Farsími** (Mobile), **Internet**, and **Sjónvarp** (TV). Each section has a plus sign between them, indicating they are bundled together.

- Farsími:** Includes 'Tvær farsímaáskriftir með ótakmörkuðu gagnamagni.' (Two mobile subscriptions with unlimited data) and 'Eins mörg Krakkakort og þú þarft.' (As many child cards as you need).
- Internet:** Includes 'Ótakmarkað internet.' (Unlimited internet), 'Netbeinir og uppsetning á búnaði.' (Direct lines and equipment setup), and 'Aðgangsgjald gagnaveitu.' (Access fee for service).
- Sjónvarp:** Includes 'Áskrift að [Vodafone] og [Vodafone]' (Subscription to Vodafone and Vodafone) and 'Háskerpu myndlykill.' (Set-top box).

At the bottom, the price is listed as **19.990 kr./mán.** with a button labeled **Panta Pakka →**.

Source: Screen shot from: “<https://vodafone.is/fjolskyldupakkinn/>” 24/08/2021.

3.1.2.11 Nova

87. Nova offers the package “AlltSaman (All together)”, which contains an Internet connection or fibre-optic with unlimited data and 3-5 mobile phone subscriptions and 2-3 connections for smart watches. The price of the packages from ISK 17,290 - ISK 20,290, depending on the number of smart devices. Access charge and Internet router are included in this price.

Figure 3.14 Nova presentation of “AlltSaman”

The screenshot shows the Nova AlltSaman package presentation. On the left is a list of services, and on the right are two package options: **Meira** and **Mest**. Both options have a green badge that says 'Prófaðu frítt í mánuði!' (Try for free for one month!).

	Meira	Mest
Farsími og snjalltæki Ótakmarkað net (EES: 9 GB)	allt að 3 x	allt að 5 x
Úrlausn eSIM í snjallúrið	allt að 2 x	allt að 3 x
Ljósleiðari eða 4.5G Ótakmarkað net	✓	✓
Ráðgjafi Leiga	✓	✓
Aðgangsgjald	✓	✓
Verð	17.290 kr. / mán	20.290 kr. / mán
	Kaupa	Kaupa

Source: Screen shot from: “<https://www.nova.is/alltsaman>” 24.02. 2021.

3.1.2.12 Hringdu

88. Hringdu do not offer a special offer package in the form of discount terms on one service if another is purchased. On the company’s website there is an offer to assemble an inclusive package according to customer needs, but there is no discount on the list price for each service.

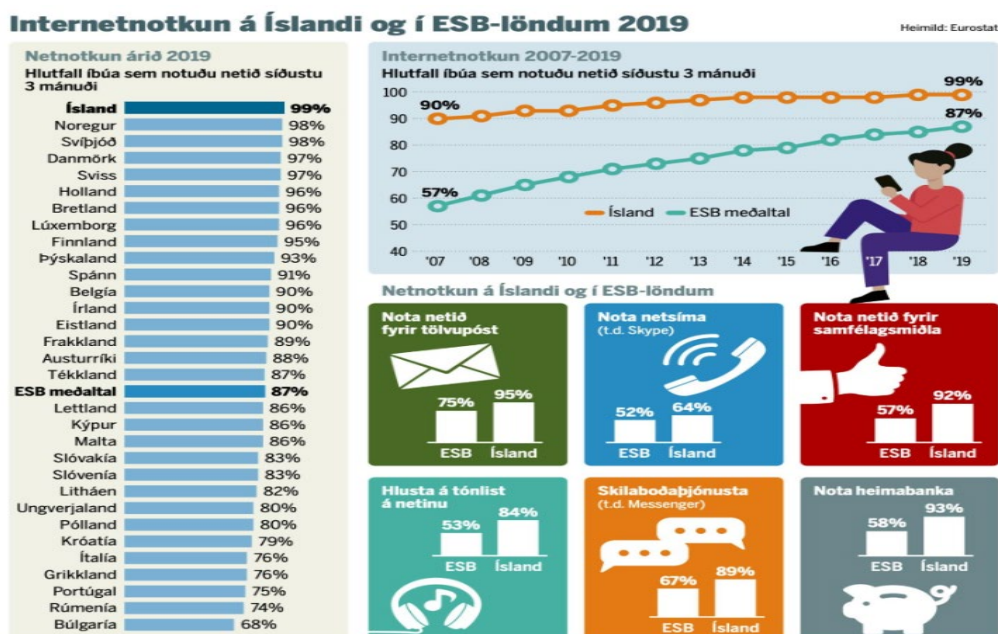
3.1.2.13 Other small companies

89. Some of the smaller companies offer package solutions with a combination of Internet service and other service which is then often sourced from larger companies. An example of this is Hringiðan which offers mobile phone and Internet through the GR network in a package with a set-top box from the Vodafone IPTV system.

3.1.3 Internet service and Iceland in international context

90. Icelanders' Internet usage is among the highest known in international comparison, which has been the case for some time. Here below is a mbl.is overview of the Eurostat survey on Internet use from 2019.¹⁵ The spread of NGA networks is very wide in Iceland and general public use of services over these networks is quite large. A new Eurostat survey for 2020 shows the same conclusion as the Administration's data collection shows, and this has been the case for the past years. Icelanders' Internet usage has been such that over 95% of inhabitants have used it since 2012.¹⁶

Figure 3.14 figure in mbl.is news item on Icelanders' use of the Internet



Source mbl.is

91. Iceland was in top position in the world in information technology and electronic communications, according to a report from the International Telecommunication Union from 2017. In this report, states are listed by score and results according to criteria used to measure the status and development of the information society. A list is also published with total scores for countries, called the IDI (ICT Development Index). It lists 176 countries across the world,

¹⁵ https://www.mbl.is/frettir/taekni/2020/02/02/islendingar_i_fremstu_rod_vid_notkun_netsins/

¹⁶ <https://ec.europa.eu/eurostat/databrowser/view/tin00028/default/table?lang=en>

ordered by score. Comparable lists for the years 2018, 2019 and 2020 have not yet been published because of problems in data collection.

92. Distribution of high-speed networks has been very high in this country in recent years and almost 98%¹⁷ of the countries' households had access to high-speed Internet service (30 Mb/s or more) and 87% of homes and 63% of companies, which is 83% of spaces, had access to a fibre-optic connection (FTTH), according to information from the electronic communications companies, at the end of 2020¹⁸.

93. Iceland is also in top position in the FTTH Council Europe¹⁹ study on use of fibre-optic connections by households in European countries, where according to the study carried out by that institution, almost two thirds of households in Iceland have fibre-optic for their connection.

94. It seems that market conditions have supported the development of NGA networks, and there was considerable investment, both in development of VDSL and fibre-optic in the years 2011-2015 and in fibre-optic well into the second decade. It also seems that years of investments by parties like GR and Tengir in fibre-optic networks to homes have had the effect that from the year 2016, Mila has conducted major deployment of fibre-optic to homes and to companies, while from the same point in time, the company's investments in xDSL have significantly decreased.

95. TV distribution over IPTV systems is widespread in Iceland in comparison with other countries. One can probably attribute the popularity of the IPTV system to the fact that in this country there was never a cable TV system with significant distribution. This meant that there was already a demand on the TV market that had not been fulfilled. It is also possible that two factors had supported each other, that the copper system and the xDSL service provided over that system was of sufficient quality to support TV distribution and that demand already existed. IPTV has the advantage over reception through an aerial that it is possible to view programs in non-linear stream, and consumers have increasingly used this service. The uptake of IPTV was unusually rapid, and one can assume that IPTV systems in this country, their technical quality and the service options available to consumers, were good by international comparison. IPTV use in this country reached a peak in mid-2018 when 100,504 homes used this TV distribution option. In mid-2019, this figure fell to 96,160 and to 88,109 at end of 2020. All of this reduction is however at the cost of Vodafone. Siminn market share on this market has increased from 56.1% to 64.5% during this period, while the Vodafone market share has dropped from 43.9% to 35.5%. The number on the Vodafone IPTV system during this period has dropped from 44,085 subscribers to 31,285, while there has been an increase at Siminn from 56,419 to 56,824 subscribers. There has been significant development on possibilities for consumers to watch TV content through OTT solutions, which probably explains this reduction.

96. When this high and widespread Internet usage in Iceland is put in context with the widespread distribution of fibre-optic networks that is now in place - where 83% of households and companies had access to fibre-optic at end of year 2020, one can consider it likely that in this country there is some less need to specifically encourage investment in distribution of fibre-optic in access networks than is widely the case across Europe, though deployment of

¹⁷ Because of varying definitions of households in datasets, there is uncertainty about the precise number.

¹⁸ With reservations on the precision of data received by the PTA and the registration of households in Registers Iceland.

¹⁹ https://www.ftthcouncil.eu/home/latest-news/new-fibre-market-panorama-2020-data-presented-by-ftth-council-europe-reveal?news_id=3857

fibre-optic remains to be implemented to a number of homes and companies in the country and in less economical areas than now have been covered. According to the Parliamentary opinion on policy in electronic communications for the years 2019-2033, the objective is that access to fibre-optic for residences and commercial premises will be 99.9%.

3.1.4 Demand on the market for Internet service

97. One thing that has to be examined on retail markets is whether defined customer segments have collectively some specific and other needs than other groups. Differentiation of customers on retail markets and the manner in which such needs are fulfilled is one of the key elements of competition on retail markets in general. One of the main elements of such benefit segmentation is that there is some inner or technical difference between products and that customers are prepared to pay for the product that best suits their needs.

3.1.4.1 Consumers

98. As an increasing part of telecommunications has moved to the Internet, consumer data use has grown significantly since the last analysis. This is particularly the case because of the increased importance of digital media and digital entertainment. Visual content in high-definition, HD and 4K, has multiplied data transmission from what it was. This is evidenced in the composition of subscription packages provided by the electronic communications companies, where the included data consumption has increased significantly, and unlimited data is now widely available for a fixed price.

99. Development in the building of networks has corresponded to this increasing need for data transfer capacity. GR has upgraded all of its customers to 1 Gb/s connections. This was done during a two-year project which began late in 2015. From that time all new connections have also been 1 Gb/s. The Mila fibre-optic rollout has been extensive during the last 5 years and customers on the Mila fibre-optic network are also provided with up to 1 Gb/s.

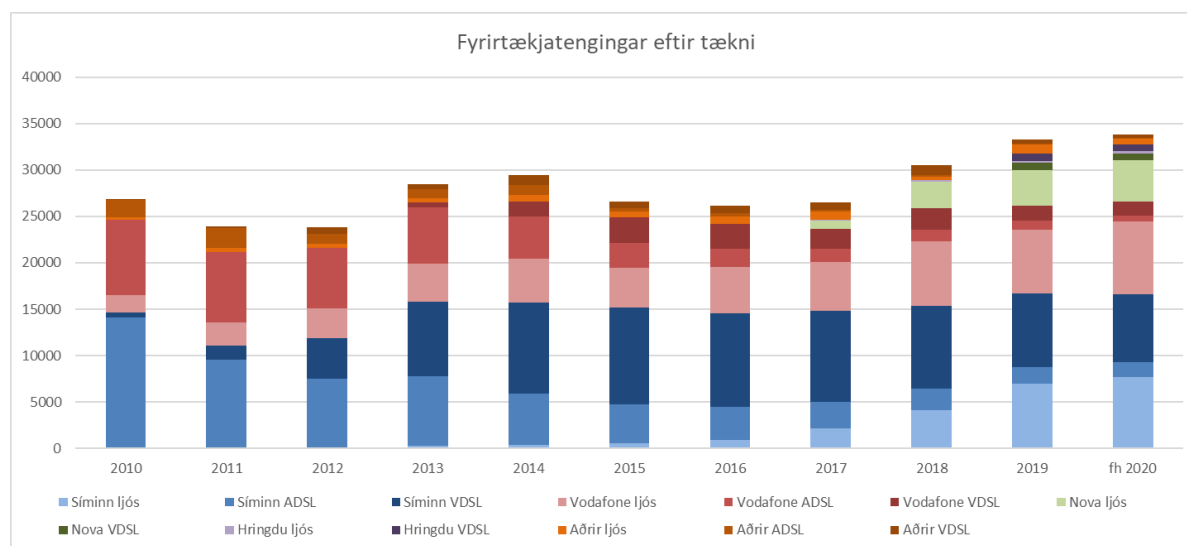
100. Differentiation in technical characteristics of Internet access, such as performance and service quality is small, if any on the retail market. One could say that a normal consumer connection carries the traffic that consumers want, with the quality that suffices for the purposes, whether this is in performance, lag or jitter. This can be seen in the way retailers present their products. Mila asserts on its website that VDSL connections (Ljósnet) fulfil all requirements for households. The supply and advertisements are all about data volume and price, not technical quality or benefit segmentation with some special characteristics.

3.1.4.2 Company

101. Companies in Iceland are almost all small in international and European comparison. Throughout the years, an Internet connection of consumer quality has sufficed for almost all companies. For this reason, an extensive company market that makes greater demands on technical quality has not come into existence in this country, to the extent that is widely the case abroad, which makes increased demands such as on uptime and performance and also service related, such as response time in the case of faults.

102. Part of the reason for this is also the fact that consumer service in this country has throughout the years been excellent on a European scale and for this reason, companies have generally not seen the need to pay more for higher quality service.

Figure 3.15 Company connections by technology



Source: Post and Telecom Administration.

103. The total number of connections did not change much during the last decade, with Síminn and Vodafone having the largest shares, but this period is characterised by a very significant decrease in ADSL connections which were 3% of the total number of bitstream connections at the end of 2020. Vodafone did not enter the VDSL market until after Síminn had operated the service subject to wholesale obligations for 3 years and then only through Mila Access Option 3, until the year 2013 when Vodafone received access to Access Option 1. This can be attributed to complaints about Síminn denial of access through Access Option 1, which took some considerable time to resolve²⁰. Another characteristic of the market is a significant decrease in bitstream connections over copper local loops and the corresponding increase in connections over fibre-optic local loops in recent years, where, at the end of 2020 the proportion was 70% over fibre-optic and 30% over copper.

104. Statistics on the number of companies purchasing retail Internet service are distorted by the fact that it is very common that companies pay for home connections for employees. According to the consumer survey commissioned by the PTA in autumn 2020, this proportion is approaching 20%. Such connections are in reality consumer service but in the statistics the connection is recorded as corporate service as the company in question is the payer. The statistics do however indicate where companies seek total solutions for their electronic communications requirements, as home connections for employees are often part of the total purchases of a company of fixed line telephone, leased lines, various kinds of IP solutions, mobile phone solutions, even hosting, payment solutions and so on.

²⁰ See Decision no. 38/2012 on Access Option 1 with Síminn dated 14 December 2012. With the Decision in question, Síminn was obliged to accept the Vodafone request for access to what is called Access Option 1 in bitstream with Síminn Group, among other things in VDSL, but not solely in ADSL as the Group had demanded. The access should offer multicast functionality for the Vodafone IPTV system and VoIP functionality at cost analysed prices.

3.1.4.3 Corporate market for specialised solutions

105. There is often an opportunity to offer comprehensive solutions, e.g., with a bid for tenders on varied solutions²¹. Electronic communications companies assemble their products to provide solutions for such needs.

106. If wholesale solutions that are normally used for the consumer market are used in such offers, then this will appear in the regular statistics collected by the PTA; the Administration has regularly collected data on retail special solutions (e.g., leased lines) for companies.

107. Part of the comprehensive solutions offered to companies will often be home Internet connection for employees, which among other things, may be intended for employees working from home. The employer is then registered as the payer of such connections, and in the PTA statistics the connection is therefore on the corporate market, though it may be for home use.

108. On the market for bitstream solutions there are also versions that are specifically intended to meet the needs of companies. They then include other functionality than the consumer connection, such as the possibility to set up a separate virtual network tailored to the needs of the company in question. Such connections also receive special service, among other things, shorter waiting time for fault diagnosis and repair, should, that be needed.

109. Shortly after the ADSL solutions arrived on the market, about or just after the turn-of-the-century, so did a variant of DSL connections which offered symmetric bandwidth, i.e., SDSL and later SHDSL. Such solutions can replace leased lines, at least in some instances, as they can offer performance up to 2 Mb/s, equal download and upload. Special xDSL solutions have therefore been offered on the corporate market for a long time.

110. Soon after Mila constructed its VDSL system, such corporate solutions also appeared that were based on the same kind of handling of company needs, and now subsequent to the Mila rollout of fibre-optic, GPON corporate connections are offered.

111. Internet service intended for homes has generally been of a very high quality in this country, and one can among other things consider that this fact is one of the reasons why many companies have let consumer products suffice. Performance is good, and there are few faults. In addition to this, companies in this country have on average few employees, so the performance offered by consumer connections will be sufficient for such operations in the majority of cases. Mila has adapted its product offer to this fact and now offers both “home connections” and “corporate connections” to companies.

3.1.4.4 In general on demand on retail market for Internet connections

112. Increased capacity of connections and increased offer of media and entertainment content have kept in step with growing demand for increased data volume. It is difficult to see what comes first, the egg or the chicken, i.e., whether new possibilities in streaming service encourage demand for increased performance and for Internet subscriptions with increased data volume or whether growing technological capacity of Internet connections made the supply of

²¹ See Decision by the Competition Authority 42/2017, merger 365/Vodafone.

such streaming services possible. When IPTV first arrived, the quality of streaming of visual content over the public Internet was generally impaired because of unreliable capacity, both within the country and between countries. It was therefore a technical necessity that IPTV service received guaranteed capacity on a separate virtual network with priority over that part of the user's bitstream connection that carried the public Internet. The huge success of streaming services such as Netflix, Amazon Prime Video, Apple+, Nova TV and others that offer their services through the public Internet, demonstrates that there is no longer a need today for a separate service connection for these needs, which was the case before.

113. The IPTV service that Siminn and Vodafone offer their customers is as previously stated, provided on a separate virtual network as “specialised service” in the understanding of network neutrality rules. On such a virtual network, it is possible to provide the service with more reliable capacity than the public Internet offers, i.e., “best effort”. Siminn has however offered a set-top box for its IPTV service which can be directly connected to the public Internet access (OTT), called “network neutral set-top box”. This set-top box is only available to those who have a subscription to the company's TV content, either Siminn Sport (English football) or Sjónvarp (TV) Siminn Premium. In February 2021, Siminn announced that the company would later offer the visual content in question without connecting through a Siminn top set box, including through Apple TV. Subscribers to IPTV service peaked in this country in mid-2018 but have declined somewhat since then, from 100,504 in mid-2018 down to 89,109 at the end of 2020. This reduction is only with Vodafone, where IPTV subscriptions have declined with that company from 44,085 to 31,285 during this period, while subscriptions have increased at Siminn from 56,419 to 56,824.

114. It is clear that increased access to visual content of various kinds is now one of the main drivers of consumer demand whether this is increased possibilities for older streaming providers such as YouTube, or new providers that have joined the steadily increasing content flora. These streaming providers are first and foremost, what are called OTT solutions, as they use the public Internet access of their customers for carrying data to consumers. The popularity and consumer demand for such OTT streaming service shows that, as far as quality is concerned, it is not necessary for streaming services to be provided over a controlled virtual network as is the case with IPTV.

3.1.4.5 Company share of bundles

115. One aspect that one must keep in mind is the number and share of various bundles on the retail market, where some companies may have a stronger footing than others. The PTA has collected data on a variety of offers of electronic communications companies of their bundle services and on the number of sold subscriptions to these bundles since 2016, and this three-year development is illustrated in figure 3.16 here below.

116. In figure 3.16 here below one can see how Heimilispakkinn Símans - which is a trio of Internet services, home phone and TV - is the package that enjoys greatest popularity among consumers and that it is head and shoulders above the next bundle below, which is offered by Vodafone but however also offers mobile phone subscription. Siminn offers its customers that subscribe to its Heimilispakkinn the possibility of tenfold data volume on mobile phone subscriptions, which is tantamount to mobile phone subscription being also part of the offer Heimilispakkinn, though mobile phone service is not actually an integral part of the package.

Figure 3.16 Number of subscriptions to package offers [...]

117. One must consider it likely that the Nova offer had some effect in maintaining the growth of the company's share in 2018, as the company's Internet service was offered at attractive terms in a bundle which included the company's mobile phone service. The Nova bundle now available offers a combination of Internet service with unlimited data volume and three or five mobile phone subscriptions, also with unlimited data volume, and connections for two or three eSIM smart watches, for a fixed monthly charge where the router rental and access charge for fibre-optic are included.

118. In analysis of retail markets, bundles can have such importance that they should be considered to be a separate retail market. Whether such a position now prevails is unclear, but regardless of whether bundles are a separate retail market or not, it is clear that the underlying wholesale products are the same - whether Internet service, TV service over IP (IPTV) and IP voice telephony service are separate retail products or sold in one bundle. There is therefore no need in this market analysis to decide whether or not the market for bundles is a separate market at retail level.

119. In Section 9 in the Competition Authority Decision no. 42/2017 (merger of Fjarskipti hf. (Vodafone) and 365 miðlar hf.), dated 8 December 2017, there was discussion on a possible market for bundles. The Competition Authority did not take a definitive position on whether a separate market for bundles existed in this country, which contained electronic communications and TV services. It was stated that in recent years, it had become increasingly common that electronic communication companies would offer consumers varying types of electronic communications services, and even TV service as a single purchase. Another word for such marketing is bundling or combining transactions. Bundling of transactions means that consumers were offered as a single purchase, products or services that had previously been sold separately to consumers. In competition law it has been deemed that the companies with market dominance were bound by certain restrictions when it came to bundling or combining transactions. This means that unlawful bundling or combining of transactions can constitute a breach of article 11 of the Competition Act.

120. It was also stated that the electronic communications companies Vodafone, 365 and Siminn had offered standard packages which could variously include home phone, Internet, mobile phone and TV service. Other competitors, among others Hringdu and Símafélagið²², had offered customers the option of assembling their own package without any special discount. There were however no instances of other competitors on the electronic communications market than the ones specified above offering their customers TV and electronic communications services. This change in marketing of services called for an examination of whether such bundles/special offer packages could belong to a separate market. In Iceland it was common that consumers chose to purchase more than one type of electronic communications service from the same company. It was also clear that a significant number of customers of the merging parties purchased predefined discount packages which contained more than one type of service. The above specified offers were based on rewarding the consumer with a discount on list price if he purchased more than one type of service from the company in question. The position on the market indicated a considerable and growing importance of packages in transactions for electronic communications and TV services. This represented a considerable proportion of customers of electronic communications companies,

²² Símafélagið merged with Nova.

particularly homes. A large part of these package offers included TV service of some kind or another. From this it was clear that TV service was extremely important for the packages that these companies were selling.

121. It was also stated on pages 70-71 in the above specified Competition Authority Decision:

“It is the conclusion of the Competition Authority that the importance of bundles in electronic communications and TV services has increased significantly in recent years. For quite some time, the possibility of purchasing Internet, home phone and mobile phone in the same package has been on offer. The development of also offering TV service is relatively new and really got under way with the entry of 365 to the electronic communications market. Today, 365, Vodafone and Siminn all offer bundles that include three to four service items. For this reason, the Competition Authority considers it important to take special note of bundles when assessing the impact of a merger. This applies particularly to assessment of capability and possibilities of merging parties to leverage their strong position on one market (e.g., subscription TV) to improve their position on another market (e.g., Internet service).

Despite the fact that the market for bundles is still developing, one must in the opinion of the Competition Authority, take particular note of the impact of a merger on that market. This particularly applies to the market for bundles that include a mixture of electronic communications and TV services. An analogous approach was among other things, grounds in the above specified Decision of the ESB Commission in the Vodafone/Liberty Global case.”

122. With the CA Decision no. 25/2020, dated 28 May 2020, the Authority came to the conclusion that Siminn had, with the sale of the TV channel Siminn Sport with English football through Siminn Heimilispakkinn, breached three of the above specified conditions in two settlements that the company had undertaken with the CA in 2015. Siminn was made to pay an ISK 500,000,000 fine for these breaches. With the Ruling of the Competition Appellate Committee no. 1/2020, dated 13 January 2021, the Committee confirmed that Siminn had breached article 3 of the Settlement between Siminn and the CA, which is prescribed in the CA Decision no. 20/2015, and the Siminn fine was reduced to ISK 200,000,000. The provision in question that Siminn was deemed to have breached was to the effect that Siminn was not authorised to make it a condition for purchase of electronic communications service that the company provided, that some part of service of Skjárinn pursuant to the settlement should be included in the purchase. Siminn is furthermore unauthorised to bundle its electronic communications services and those of Skjárinn at a price or on such terms that would be equivalent to the above condition. Siminn was considered to have breached the second item of the provision.

123. It was therefore confirmed that Siminn had, with its selling and marketing of the TV channel “Siminn Sport” through the company’s Heimilispakkinn, breached the conditions of article 3 of the settlement in question. In the opinion of the Committee, Siminn had leveraged its position to cause its customers in one type of service to buy or receive Siminn service of another type, for a price or on business terms that could be equated to a condition to purchase these service types together. With marketing which made the TV station “Siminn Sport” part of the Heimilispakkinn through the content offer “Sjónvarp Símans Premium”, while at the same time increasing the Heimilispakkinn price insignificantly, one must deem that Siminn had specifically endeavoured to get that group of its customers that had already purchased electronic communications and TV service from Siminn through the above specified service option, to also purchase access to the TV channel in the same manner. In the opinion of the Committee, the Siminn infringement was serious, and Siminn’s conduct violated provisions of the settlement that the company had itself undertaken to respect in its operations. It was

important that the conditions of settlements were complied with and that it was endeavoured to achieve their objectives. Siminn could not have been unaware of the fact that the company's selling and marketing of the TV channel, "Siminn Sport" could be in breach of provisions of the settlement.

3.1.5 Development of offer of various access technologies on the retail market for access at a fixed location

124. Mila, having inherited the Post and Telephone service monopoly, controlled a copper line network that covered almost the whole country²³. Though such networks were first deployed solely for fixed line telephone service, they were upgraded to carry data in parallel with telephone traffic. This was first done with ISDN, which made it possible to offer consumers up to 128 Kb/s connections. Mila has subsequently, to a large degree, upgraded the data transfer available to consumers through the copper network to VDSL connections²⁴. Then the development of fibre-optic networks commenced, and their distribution has increased year by year since the company began their deployment in earnest in 2016, and the company's networks of this kind now reach at least 77,000 of homes and companies in the country, which represents about 47% of them. Companies like GR and Tengir commenced fibre-optic deployment in their territories more than a decade ago, while Mila commenced rapid and extensive fibre-optic deployment in 2016 as described above. Subsequently, smaller companies like Snerpa in the West Fjords and Austurljós in East Iceland have deployed fibre-optic, as has a number of municipalities here and there across the country and they have mainly deployed fibre-optic in rural areas, often with state aid. Concurrent with this development in fixed line networks, a number of wireless solutions for data transfer were on offer. The following subsections deal with the most common categories of access technology in use in this country.

3.1.5.1 xDSL copper solutions

125. xDSL is an umbrella definition for a variety of digital solutions used to offer powerful data transfer through traditional copper lines. This is implemented with fibre-optic connections to telephone exchanges, distribution frames of the copper line system, from where the local loop lies to each user and equipment which is called DSLAM (Digital Subscriber Line Access Multiplexer) makes a connection over the copper local loop. Customer premises equipment (DSL modem) located with the customer then provides access from the user point of view. DSL technology has gone through many upgrades and versions which provide more and more powerful data transfer to customers.

126. In this country, in broad terms, the following DSL technical solutions have been used, among other things, to provide services on the consumer market.

- ADSL with 8 Mb/s download and 1 Mb/s upload maximum performance, with usable range of up to 3-4 km local loop, as such, with a 4 Mb/s connection, but it is possible to achieve connections with very limited performance to a maximum of 8 km.

²³ At the end of 2020, the Mila copper network reached 86% of homes and companies in the country. In recent years, Mila has only deployed fibre-optic local loops to new buildings. When the company's fibre-optic local loops are included, the companies local loop network reaches almost all homes and companies in the country.

²⁴ About 92% of Mila copper connections were on VDSL at the end of 2020.

- ADSL2 with 12 Mb/s download and 3.5 Mb/s upload maximum performance where about 12 Mb/s is achieved on a 1,500 m line length.
- ADSL2+ with 24 Mb/s download and 3.5 Mb/s upload maximum performance where about 12 Mb/s is achieved on a 2,500 m line length.
- VDSL2 with 50 Mb/s download and 25 Mb/s upload maximum performance on a 300 m line length. With the VDSL, the DSLAM equipment is usually located in a street cabinet, instead of the distribution frame at the telephone exchange and thus much closer to the customer, as the technology does not support long-range connections.
- VDSL with vectoring with 100 Mb/s download and 25 Mb/s upload maximum performance. By using error correction called vectoring it is possible to double the performance of VDSL connections. The line length is still about 300 m.
- VDSL has however been offered to customers with up to 1,000 m line length, but then with impaired performance which gives about 30 Mb/s download.

127. One cannot expect further investments of any magnitude to be made in DSL technology on copper networks, but there are solutions such as G.fast where it is possible to achieve 1 Gb/s download on lines shorter than 100 metres. Then there is the possibility of fibre-optic to the house and copper lines to residences within the building. Experiments with XG-Fast have shown that it is possible to achieve 10 Gb/s performance on copper lines up to 150 metres.

3.1.5.2 Cable networks

128. Some years ago, there were cable systems for TV distribution that were built in neighbourhoods or in smaller urban clusters. These systems were mostly almost all decommissioned when the offer of TV content increased through other distribution channels.

129. There is however one company that also offers Internet service through a cable system, i.e., Kapalvæðing and it has some share in the municipality, i.e., in Reykjanesbær, where it operates, but the share of cable at a national level is negligible. The company operates on its own DOCSIS infrastructure and does not offer wholesale to other service providers. The cable system in question reaches just under 4000 homes in Reykjanesbær, and active connections are fewer than 1000, i.e., more precisely [...] and usage of the system therefore less than 25%. Kapalvæðing has now made agreement with GR on access to the GR network and it will therefore offer retail service at more locations than in Reykjanesbær on the GR fibre-optic network. In the opinion of the PTA, it is unlikely that the company's cable system will be distributed more widely than in Reykjanesbær, and certainly not outside that municipality.

3.1.5.3 Fibre-optic networks

130. Service through fibre-optic local loops has been on offer for nearly two decades. It was first offered in limited experimental projects and then, about 15 years ago, it was offered on the mass market to consumers.

131. Today, the fibre-optic access network has first and foremost two network topologies, i.e., passive optical splitter (passive optical network, PON) and optical switch (point-to-point network, P2P).

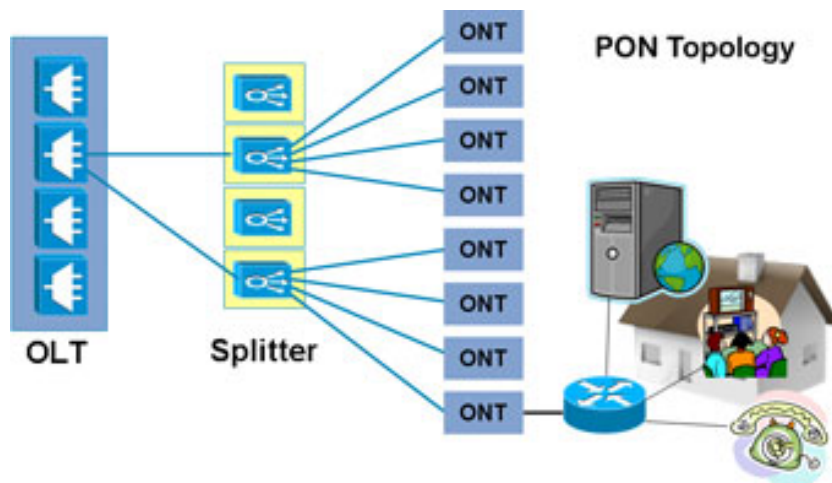
132. In many places, market conditions are such that former monopoly holders in electronic communications in Europe, i.e., former state telephone companies, have chosen passive optical network (PON) solutions while new parties on the competition market have chosen P2P. This however is not without exception, but this is the way it is in this country.

Passive network topology

133. Passive network topology is implemented with a single optical fibre from an Optical Line Terminal (OLT) to a conduit access, which is close to the customers, often 32, 64 or 128 end-users. In the conduit access pit, there is a passive splitter which divides the light from this one fibre in 32 to 128 directions, i.e., to the customers that are connected to the splitter. The splitter is passive, i.e., a kind of prism that breaks up and directs the light rays into other fibre-optic lines. An Optical Network Terminal (ONT) is located at the user end for connections to traditional network and telephone cables, such as for a router from an Internet service provider. As in DSL technology, there are many standard solutions within PON technology, but Gigabit PON (GPON) is currently in all likelihood the most used, among others by Mila.

134. The GPON solution, like the one used by Mila, can carry light over a 20 km line route to 32, 64 or 128 customers. Varying bit speeds are possible, but it is usually 2.4 Gb/s download and 1.2 Gb/s upload that are shared by the customers who are connected to the same optic splitter and its optic fibre to the central connection point. Mila offers customers up to 1 Gb/s symmetric service on its GPON network through sharing, where the most usual configuration is for 64 customers to be connected to one splitter.

Figure 3.17 Structure of PON fibre-optic networks



135. Future solutions are among others, NG-PON2 and XG-PON where it would be possible to offer up to 10 Gb/s symmetrical bandwidth to each customer.

136. As the splitter is located quite close to customers and is passive, i.e., there is no need for electricity or cooling and it is of small volume, it is almost impossible for outside parties to

gain access to dark fibre-optic local loops to users. There are few options to install the equipment and access is obtained to few users from each manhole.

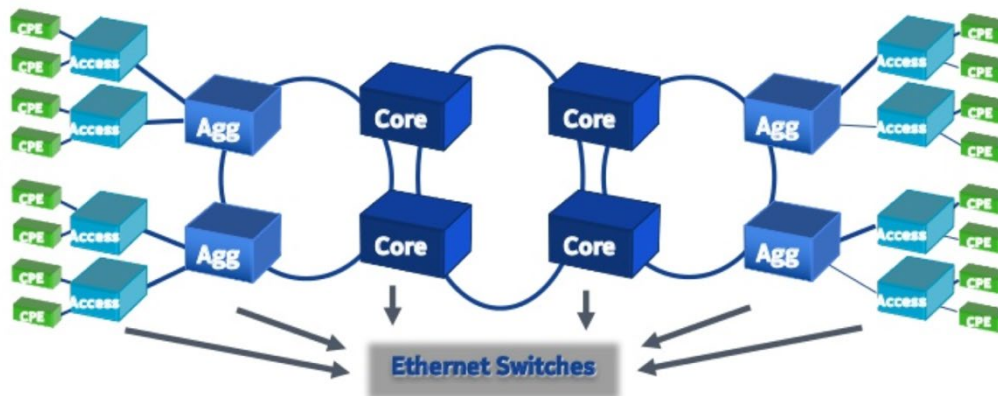
137. By far the largest part of Mila fibre-optic system has the above specified GPON topology, and Mila has, to a significant degree been deploying them with state aid, purchasing or assuring long-term control over fibre-optic networks in the countryside that have been deployed with active P2P topology. This applies among other things to a network developed by Gagnaveita Skagafjarðar in Sauðárkrókur, and to smaller rural networks that have been developed with state aid in the most sparsely populated areas. Mila then adds GPON equipment to such P2P fibre-optic to ensure harmonisation in the company's network operations.

138. It is technically problematic to provide physical local loop access to a GPON fibre-optic network, and up to this point in time, such access is too expensive in execution to be profitable.

Active network topology

139. Active networks are often based on many connection points being connected together in rings or nets. The custom is that the rings form a core layer, distribution layer and access layer. At each connection point there is a network switch which directs traffic into the next ring or segment in the network. The network switch is active equipment which means that it uses electricity and needs cooling and makes decisions on where the data in question is directed. It reads the data that the incoming light signal holds, decides through which connection port it should be sent and sends new light signals into the fibre-optic connected to those connection ports. With such rings or nets, many routes are made through which data can stream through the network. At the perimeter of the rings or nets, users are connected with the connection point. That is the only location in the network where there is no reserve route.

Figure 3.18 Topology of active fibre-optic access networks



140. As all equipment is active, the quality of the service can be controlled through the network, but this requires that each connection point needs to have equipment with performance that can handle all traffic that goes through the connection point or that is foreseeable. Each customer therefore has an independent and quality-controlled connection to the network switch of the access layer. As the fibre is whole and undivided from the access switch to each customer, it is the connection equipment of the access layer switch and the endpoint devices of the customer that control the performance of the connection. By replacing equipment one can therefore increase transfer capacity.

141. GR operates a network of this type, and Tengir in North Iceland. In countryside networks that have received grants from the Telecommunications Fund, there are few connection points and final local loops are usually long. Countryside networks are not based on rings or nets. In many instances the architecture of the fibre-optic network is P2P, and use is based on P2MP.

142. GR first offered 100 Mb/s, then 400 and then 500 Mb/s, but since late in 2015 all customers have been moved to a 1 Gb/s symmetric service. Tengir also operates its active P2P network with 1 Gb/s capacity.

143. Connection points on the access layer, where the last leg to the user is connected, are often rather large and connect a considerable number of users. There is room there for a connection cabinet with electricity and cooling. It is therefore often technically possible for external parties to have access to the local loop from that point and to connect to their own equipment. In some instances, there are connection points, but they are in restricted space which can hinder easy access to local loops. As an example of access to technical space, one could mention that Mila receives hosting for an optical splitter in Tengir technical space and uses the last leg to make its own GPON bitstream service on dark fibre local loops leased from Tengir.

3.1.5.4 Wireless access network with fixed use location (WiMax and similar)

144. In the countryside, where line lengths are too long for xDSL solutions in existing copper networks and where there is no available fibre-optic, it has proven feasible to build networks on wireless technology. As the user is at a fixed location, even with a reasonable aerial on the roof, a good connection can be maintained. Over shorter distances, e.g., in urban areas, one may provide such service to users who are on the move.

145. WiMax is one standard for such service, and such networks have been operated in this country for some considerable time by, e.g., Ábótinn in South Iceland and by the company eMax which subsequently merged with Vodafone. With this technology, it was possible to achieve performance on a par with ADSL, 15-20 Mb/s download speed and ping about 50 ms, similar to what was achieved in modem service.

146. WiMax networks are being decommissioned, among other things because of the Iceland Optical Connected project operated by the Telecommunications Fund. Mobile network service over 3G and 4G has totally replaced WiMax in urban areas. There is now one company with a frequency licence for operating WiMax which is in force until the end of 2021. WiMax frequencies are on the spectrum which in the future is intended for mobile network operations, so one can assume that renewal will in all likelihood not be authorised. This service is thus being decommissioned.

3.1.5.5 Mobile network

147. The data carrying capacity in mobile networks has changed dramatically since the last analysis, with the spread of 4G technology across almost the whole of the country. Customers of mobile network service have several possibilities to use an Internet connection through a mobile network.

148. Most common is that the handset itself, a smart telephone, is open for data transfer. The situation on the mobile phone network market is now such that telephone minutes and SMS, which were previously the main source of income for mobile networks, are now provided in unlimited quantity while data quantity has become the sales product.

149. The usage pattern of consumers in handheld devices is to be connected with various services on the Internet, among other things social media, chat systems and email while on the move. Fixed line service is clearly not a substitute for such mobile network service and vice versa.

150. In the same way, fixed line service offers a network connection of a quality level other than that provided in mobile network. The performance of fixed line networks is still much greater, despite the introduction of 4G and 4.5 G technology, ping is usually much shorter in fixed line networks, which is important for real-time communication and particularly on-line games. Jitter is also less, which is also very important for real-time communication with respect to stable service. Then the capacity of each mobile network transmitter is also shared by those who are using the service at that point in time. Fluctuation in capacity of mobile networks is therefore more likely to lead to impaired or varying capacity for each user than is generally the case on fixed line connections.

151. Pricing of the service varies, and it is somewhat more expensive to use data transfer on mobile networks than on fixed line networks, though the difference has decreased in recent years.

152. The development of next generation mobile networks, 5G, is in its early stages in this country and Nova has already commenced development, still to a limited degree, among other things in the Westman Islands. In the autumn of 2020, the PTA sent mobile phone companies a questionnaire about their distribution plans for 5G and about the potential impact of such technology on the markets here under discussion. The simple truth is that the answers were very general, short and did not provide the PTA with much of an insight into the companies' future plans in this area. Among other things, reference was made to delays because of COVID-19 and the possible government ban on equipment from a specific manufacturer registered outside the EEA, and such a ban would have an impact on development plans of Nova and Vodafone. The companies' plans with respect to 5G development are therefore subject to significant uncertainty, which makes it difficult for the PTA to make a projection of this development for the lifetime of the analysis.

153. On 30 April 2020, Siminn, Vodafone and Nova were for a limited period of time allocated, until the end of 2021, 100 MHz at 2.6 GHz frequency range for 5G service. The PTA has now commenced preparation for reallocation of these frequencies, and other frequencies that are expiring. This means that there is considerable uncertainty about conditions that will be designed for the bid for tenders.

154. Taking the above into account, the PTA believes it is not possible to assume that a significant proportion of the population will have access to 5G service during the lifetime of the analysis. The outlook is not auspicious with respect to the manner in which 5G networks and offer of service will develop. The PTA believes that initially for the coming 2-3 years, 5G service will first and foremost mean increased data transfer speed and in addition to this, the 3.6 GHz frequency range will be used to fill in the gaps in areas under pressure that are calling for increased bandwidth to maintain good (adequate) speed. New 5G service items that require significant bandwidth, very short ping and very little jitter, will not in the opinion of the PTA

arrive during the lifetime of this market analysis. This will be further complicated by uncertainty on the revenue and business model that will support such services, among other things with respect to division of revenue between network operators and the various service providers that offer service on the network, including potential verticals (VSP) that provide specialised service, e.g., for controlling driverless vehicles or in the health service. In addition to the uncertainty that in general applies to 5G development at world level, there are in addition, the plans of the Icelandic authorities to impose limitations on the type of 5G equipment that will be authorised for use in this country. Such limitations can delay or restrict 5G development in line with the degree to which limitations increase in number and become stricter.

155. According to all of the above, it is the opinion of the PTA that high-speed mobile network service, whether it is 4G or 5G, will not become a substitute product for data transfer service over copper and fibre-optic networks during the lifetime of this analysis. A consumer survey commissioned by the PTA in October 2020 did not alter this assessment.

156. The Westman Islands are the municipality in this country that enjoy most distributed 5G service when measured by proportion of population. This does however not appear to result in the municipality not seeing a need for fibre-optic rollout to the municipality's households and places of work, as in the summer of 2020 a decision was made to commence the first phase of fibre-optic rollout for the municipality. The following is stated on this issue in minutes of a municipality council meeting: *"The town council is unanimous that there should be no further delays to fibre-optic rollout in the town, as this is part of the infrastructure that is good to have in place in order to make the employment sector more varied with increased innovation and entrepreneurship."*²⁵ This decision by the Westman Islands town council strongly supports the PTA conclusion that 5G service has not, at least not yet, become a substitute product for high speed data transfer service over a fixed network. Mila has also announced that the company will start rolling-out fibre optics in the Westman Islands in the year 2021.

157. In October 2020, the PTA gathered information from Nova about the status of the company's position in the Westman Islands. There it was stated that the company had at the beginning of 2020 [...] subscriptions for 4G and [...] 4G/5G subscriptions in October 2020, and that the company commenced 5G service in that municipality in the spring of 2020. During this period, [...] subscribers had discontinued this service. One can assume that spaces that can be connected in the Westman Islands are about 1950, which means that this is not a high proportion of the total, i.e. about [...] %.

158. In general, one can assert that neither companies nor consumers consider broadband data transfer service on mobile networks to be a substitute service for general broadband access on fixed line networks and it is unlikely that this will be the case during the lifetime of this analysis. The PTA will however pay close attention to this with the entry of 5G and will review the analysis at an earlier date than usual, should the Administration consider this to be necessary.

²⁵ See minutes of Westman Islands town Council meeting from 11 June 2020:
<https://www.vestmannaeyjar.is/stjornsysla/stjorn/fundargerdir/DisplayMeeting.aspx?id=086372722052439665591&text=>

3.1.6 Internet service companies' business model

3.1.6.1 Own infrastructure

159. Companies have the option of building their own infrastructure. During the last two decades or so, infrastructures based on fibre-optic have been the only realistic option in new investments when one considers how long the lifetime of investments in electronic communications infrastructure needs to be if they are to pay for themselves.

160. A company can lay its own fibre-optic and be the only retailer of all services on such a network. The company then accepts all the risk of the utilisation ratio of its own retail business supporting the investment in infrastructure.

3.1.6.2 Leased infrastructure

161. A company that builds its own infrastructure can gain additional revenue by leasing access to its infrastructure to other electronic communications companies. If the company is itself retailing on the network, it is then opening its infrastructure to direct competition, but would possibly gain wholesale revenue from the additional usage that would outweigh the potentially reduced share in retail business.

162. A company that uses such access, i.e., leases access to another company's infrastructure on market terms, benefits from not having to invest in infrastructure itself. This is counterbalanced by it being in the interests of the lessor to have sufficient income from the connection and thus to maintain a high wholesale price, thus gaining as much of the retail price of the service as possible. It is also in the interests of the lessor not to lose his own share of the retail business to a competitor, e.g., by differentiating himself clearly on the market, such as by not giving the lessee access to all the resources of the infrastructure or to new technical possibilities as soon as they become available but uses it rather for himself and its own customers.

163. The Siminn Group is an example of a vertically integrated company which operates both at wholesale and retail level. Snærpa operates also at wholesale and retail level, and the company's fibre-optic network is in the West Fjords and reaches more than 1200 homes and companies, first and foremost in Ísafjörður. GR and Tengir are examples of telecommunications companies that build their own fibre-optic network but do not sell broadband service to companies or homes and instead sell access to their fibre-optic network to other electronic communications companies, GR, only with bitstream access (Market 3b) and Tengir both local loop lease (Market 3a) and bitstream access (Market 3b). In addition to this, Austurljós has deployed 200-300 fibre-optic local loops at Egilsstaðir in East Iceland, and leases local loop access to other electronic mission companies but does not operate on the retail market. The company has plans to operate its own bitstream equipment on the network.

3.1.6.3 Regulated access to infrastructure

164. If there is a party on the market who has been designated as having significant market power, he may be bound by an obligation to provide access to his infrastructure with non-discrimination, transparency and at cost analysed prices.

165. The obligation means that such a party is not authorised to refuse access for a competitor to his infrastructure, while non-discrimination obliges him to provide external parties with the same service as his own retail operations; transparency is an obligation to provide external parties with the same information and cost analysed prices ensure that such a party cannot take an unreasonably large part of the revenue from the service.

A company that uses such access has thus the option of acquiring economic access to infrastructure over which to provide his service. The company avoids substantial investments and can enter the retail market in question as a newcomer without significant access barriers. This particularly applies if effective obligations are in place on Market 3b. There is a greater need for investment in place if obligations are only imposed on Market 3a, which very few electronic communications companies in this country could handle. Against this there is the fact that such access is usually standardised and “mass-market”. The company thus has limited possibilities to differentiate itself on the basis of special technical solutions or quality criteria.

3.2 Definition of broadband access (Internet service) at retail level

166. The first step towards defining underlying elements of broadband service on Markets 3a and 3b, is to define a market for broadband access at retail level.

167. In the SMP guidelines from the EU Commission²⁶ from 2018, it is stated that the starting point for each analysis shall be assessment of the relevant retail markets, taking into account demand side and supply-side substitutability from the end-user's perspective, based on the available status assessment and likely development of market conditions over the next review period. After retail markets have been defined, and if the NRA comes to the conclusion that a lack of competition can be detrimental to consumers' interests if wholesale obligations are not in place (modified greenfield approach), the NRA shall define the underlying wholesale markets and assess whether there could be reason to designate one or more companies as having significant market power and impose obligations on that or those companies on those markets.

168. In the following subsections there is discussion on varying options for Internet access and data transfer for end users and an assessment is made as to whether they all belong to the same service market at retail level.

3.2.1 Varying access technology in broadband access (Internet service) at retail level

169. End-users can access Internet service in a number of ways. During the last two decades, there have been many types of service which have in common the function of providing end users with access to the Internet. During the first years of the Internet, end users used dial-up connections and ISDN connections over the copper network, whose data carrying capacity would be considered very small today, and hardly capable of maintaining what one would call

²⁶ See page 4 of the Guidelines.

usable Internet service given current user needs. These types of service are no longer on offer to users in this country.

170. After the dial-up connections and ISDN came xDSL technology or digital user lines over the copper network. This is a technology which sends a signal along a copper local loop at another frequency than that used for the telephone service signal. The first version of the service was ADSL, which can provide up to 8 Mb/s to the end user and 1 Mb/s from the user. After this, there came several generations of ADSL, i.e., ADSL2 and ADSL2+ which can supply up to 24 Mb/s capacity to users. A more powerful technology, VDSL, came onto the market later and this technology can provide up to 50 Mb/s speed to users, and 25 Mb/s from users. To further increase speed, some electronic communications companies abroad have adopted various methods, including pairing copper lines, error correction methods (vectoring) and the next generation xDSL solutions called G.fast. In theory, xDSL connections can have a download speed in the range of 2-1000 Mb/s. It is most common in Iceland to use a VDSL connection that provide 50 Mb/s to and 25 Mb/s from the user, which can be doubled if vectoring is used on the connection.

171. Access networks based on fibre-optic will become increasingly common and have achieved wide distribution in this country. Today, such networks can return up to 1 Gb/s speed both to and from the end user.

172. In the EU Commission Explanatory Note to the recommendation on the relevant markets from 2014, the Commission mentions a number of varying ways to receive broadband access at a fixed reception location. There it mentions technical solutions based on copper network, such as ADSL, ADSL2, ADSL2+, VDSL, fibre-optic networks and cable networks. It is also mentioned that satellite systems and wireless terrestrial TV broadcasting systems can carry data transfer service and can provide access to the Internet. It is also mentioned that wireless solutions, such as Wi-Fi, WiMax and mobile phone network services can be considered as substitute services for connecting through fibre.

173. Internet connections provided at a fixed location are on offer in Iceland through ADSL2+, VDSL2 and fibre-optic. Internet connections through TV cable systems have only been on offer in exceptional circumstances, as such networks have never achieved wide distribution and have almost entirely been replaced by TV supply through xDSL and fibre-optic. Such a cable system is only on offer in Reykjanæsbær from a company called Kaplævæðing and there are fewer than 1,000 such connections in use. Nor are there examples in this country of Internet being provided through a wireless TV distribution system and satellite connections are hardly used at all for Internet connections to general end-users.

174. The PTA considers there to be no need to specifically discuss Internet connections through TV distribution systems as such service is not on offer in this country, except to an extremely limited degree, but they nevertheless belong to the relevant retail market. Internet connections through satellite are used very little at this point in time and there is not likely to be any major change in this situation during the lifetime of this analysis, though ideas about future world coverage for Internet service, that would be provided through the LEO constellation multi-satellite system, could influence this situation in the long-term if these ideas come to fruition. The PTA considers that given circumstances in Iceland, Internet connections by satellite are not part of the retail market related to the wholesale Markets 3a or 3b, but services other than the above-mentioned will be examined in more detail in the following subsections.

3.2.2 Internet connections through copper, fibre-optic and cable

3.2.2.1 Substitutability on the basis of usage, capacity and marketing of connections

175. The PTA considers that services through access systems based on copper lines, fibre-optic and cable are part of the retail markets that should be examined in connection with analysis of wholesale Markets 3a and 3b. It is however necessary to consider whether there is sufficient substitutability between services on these three types of networks for them to be considered to belong to the same retail market.

176. From the point of view of consumers, the most important issue is the usefulness of the service, rather than the technology being used to transmit it to the consumer. In the early days of the Internet, Internet connections were used to send emails and to browse Internet pages, which often made great demands on download speed to the user. The use of the Internet has steadily increased, and new services have appeared, many of which make great demands on bandwidth. People carry out a great number of tasks on the Internet today that were previously conducted in another manner, such as banking service and various kinds of purchases. There is also a large volume of visual content and music being distributed through various kinds of streaming providers. An increasing number of users receive their TV service through the Internet services, i.e., linear, time shift and video on demand (VOD), that require huge transmission capacity, particularly for high-definition visual content.

177. What are called cloud services are seeing rapid growth, services that are such that the user needs access to applications and data on the Internet and uploads data from his endpoint device via the Internet to a remote storage facility.

178. Another factor that calls for increased bandwidth on Internet connections is the increase in Internet connected devices in homes. Various kinds of computers and personal communications devices have increased very significantly, and there has also been an increased incidence of domestic appliances being connected to the Internet, making it possible to control them remotely and to update the software.

179. It is difficult to specify with any certainty the bandwidth needed by a family which has average use of the above specified services. The extent to which users use Internet-dependent services doubtless varies somewhat. The fastest connections on the market are only necessary in homes where there are many users using services that require much bandwidth, such as 4K streaming TV. Many users manage with less speed and even a 12 Mb/s ADSL connection enables receiving TV service at the same time as an Internet connection, and on a common 50 Mb/s VDSL connection which in addition carries IPTV service on a separate virtual network, one can watch two, even three televisions in full high-definition (FullHD) on an IPTV connection, watch a streaming service such as Netflix or YouTube in super definition (4K) through a standard Internet connection in parallel with social media usage and other Internet usage on smart devices or home computers and enjoy music streaming or other streaming services.

180. Though there is a difference in carrying capacity between varying generations of access networks, this does not necessarily mean that they do not belong to the same market. Among the things that have to be taken into consideration is demand for varying technical solutions, pricing and how users are likely to behave if the price increases on one transmission channel.

181. In this country, xDSL connections of varying capacity are on offer on a copper network. The capacity of connections that can be offered appears to be determined by circumstances in each individual area. The distance from a telephone exchange and the quality of local loops are deciding factors as to whether ADSL or VDSL is being offered. In this country, ADSL has been in a major and rapid decline and at the end of 2020 there were more than 90% of copper connections with VDSL. Electronic communication companies offer in almost all instances, the fastest connection possible at the location in question, and they do not offer varying subscriptions where a distinction is made between subscriptions on the basis of speed. The difference between subscriptions with the same service provider in Internet connections is in the amount of data download allowed per month and not in the speed of the connections. The pricing of varying xDSL solutions and Internet connections through fibre-optic and cable is generally the same.

182. A service that provides varying data carrying capacity can belong to the same market. It is clear that connections with greater speed can be substitute services for connections with less speed, but whether there is substitutability in the other direction can be uncertain. Connections with the lowest speed can be adequate for users who do not use many demanding services, such as TV and streaming services, and they have little incentive to switch to more bandwidth. Such users who have fibre-optic connections can even have a tendency to move back to xDSL connections if the price of fibre-optic increases significantly. Other users may need or at least be interested in high-capacity connections and in those instances, it is not as clear that users would consider switching from fibre-optic to xDSL if the price of fibre-optic connections increased.

183. It must be kept in mind that in this country there is normally a reasonably powerful xDSL service on offer. The smallest bandwidth on offer on a copper network is 12Mb/s on ADSL2+ connections, which can however be impaired if the line is long, and if the line is very long it cannot carry any xDSL service. An impaired connection can up to a point, carry TV service. Most copper line connections, over 90%, are however, on 50 or 100 Mb/s VDSL connections, as Mila quickly distributed VDSL connections across the whole Capital City Area and then across the whole country to countryside urban clusters during the period 2011-2015. At the end of 2020, ADSL connections were only less than 3% of the total number of bitstream connections in this country. Fibre-optic connections on offer in this country, usually have up to 1000 Mb/s speed. Connections via cable systems are very few in this country, or well under 1,000, and only in one municipality out of 69, i.e., in Reykjanesbær. The speed is up to 500 Mb/s.

184. It is stated on the Mila website, among other things, that the speed offered by Mila on Ljósnet (VDSL) is up to 50-100 Mb/s and that it is possible to have up to five set-top boxes for TV service, and adequate speed for “all household use “. Mila argues in its comments on this analysis that there is no longer a substitutability between copper and fibre-optic connections. This is not in line with the company’s marketing efforts or the company’s statements to other authorities. In its comments on the Green Paper of the Ministry of Transport and Local Government for electronic communications, dated 11 August 2021, Mila stated among other things that although analysis indicated that about 13,000 access addresses in the country did not have fibre-optics, it was not the case that these homes did not have a well-functional internet. The vast majority of these homes had access to 50 Mb/s internet connections, which in most European countries is actually considered a very good speed. For normal home use there connections work well and no internet service is visible in the very next few years which requires more speed.

185. When assessing whether all the technical solutions and newer solutions with greater bandwidth belong to the same market one has to take into account the size of the gap between service types of varying generations. In the Explanatory Note to the EU Commission SMP guidelines from 2018²⁷ there is discussion on what is called a *chain of substitution* which means that products or services can be deemed to belong to the same markets even where there is no direct substitution between them, if there are other products or services which have substitution for both of them.

186. There is also discussion on what is called asymmetric substitution, which is common on markets for electronic communications service where a new technical solution can be a substitute service for older solutions as it offers all the advantages of the older one. It is on the other hand however not certain that older technical solutions are in all instances a substitute services for the new solution, as the new one has more possibilities for use and greater performance. For this reason, varying generations of technical solutions in electronic communications have for example been considered to belong to the same markets, e.g., 2G, 3G and 4G mobile phone services, as the basic purpose of the service is the same even though the newer generations offer greater quality and performance. Normally, when NRAs within the EEA define broadband services there is not deemed to be such a fundamental difference between newer and older service types on copper-, cable- and fibre-optic networks to deem there be a break in the chain of substitution. For it to be deemed that there is a break in the chain there needs to be a clearly unbridged break in the chain, e.g., where only very low performance connections on a copper network, e.g., ADSL, were being offered on the one hand and on the other hand, fast fibre-optic connections.²⁸

187. One could say that in this country there is a regular progression from one type of service on offer to the next, in comparison to other countries. The connections on offer here are ADSL, VDSL+, ADSL2, ADSL2+, G. SHDSL, VDSL and fibre-optic to the house. The vast majority of connections are however over VDSL (27%) or fibre-optic (70%). Cable connections are also available in Iceland to a limited extent in one municipality, i.e., in Reykjanesbær.

3.2.2.2 Statistical information

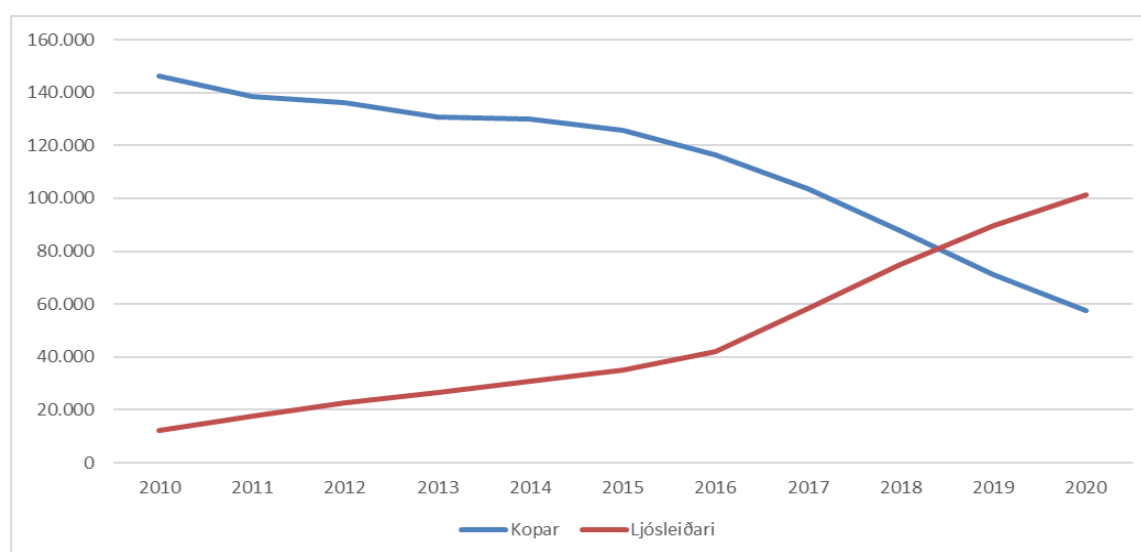
188. The PTA has examined statistical information on the distribution of copper and fibre-optic networks, the number of users on such networks and on users switching between such networks. The objective of such an examination is among other things, to assess the extent to which users choose fibre-optic, whether users switching is only one direction between these networks and the likelihood of how these networks will develop during the period of validity of this analysis. This could give indications about whether users perceive copper networks as substitute service for fibre-optic and whether copper networks will still provide fibre-optic networks with the competition to an adequate degree during the coming years.

²⁷ SMP guidelines page 7.

²⁸ In a recent case from December 2019 with the Swedish NRA, the PTS, the conclusion was reached that there was no longer substitution between connections on a copper network and fibre-optic connections. In that country there are a few VDSL connections and there is therefore a very significant imbalance between the performance of copper networks on the one hand and fibre-optic on the other. The EU Commission did however exercise its veto on that market analysis of Market 3a in February 2020. The Commission made however no comments on that part of the analysis but rather on the geographic analysis. Sweden would have been the first country in the EEA, which came to this Decision. The case is examined in detail later in this document in the discussion on geographic analysis, and in Appendix A-1.

189. It is clear that copper local loops in use have decreased significantly in recent years. They were 114,000 at the end of year 2016 and were 58,000 at the end of year 2020. Of these copper local loops, there were about 43,000 that were used for xDSL connections. At the same time, fibre-optic connections have increased. Fibre-optic local loops in use were about 35,000 at the end of year 2016 and were over 101,000 at the end of year 2020. At the end of 2020, there were only about 800 cable connections in use in this country, and only in one municipality, i.e., in Reykjanesbær. In view of the negligible effect of such connections in the overall context, those connections will not be specifically discussed in this sub-section. Figure 3.19 shows development in number of local loops of each type in lease during the last 10 years.

Figure 3.19 Development in number of copper and fibre-optic local loops in use 2010- 2020



Source: PTA.

190. Not all fibre-optic local loops that are deployed are taken into use immediately. Mila had for example deployed at least 77,000 fibre-optic local loops at the end of 2020²⁹ and now has just under [...] in use which is about [...] % utilisation. GR had about 109,000 local loops at the end of 2020, of which just over [...] were in use which is just over [...]. Tengir local loops were about 10,000 at the end of 2020, with about [...] in use, or just over [...] %. It varies somewhat between areas how much usage there is of fibre-optic, and this can among other things be affected by whether there is another fibre-optic network available in the area, where the VDSL is offered in the area or connections with less capacity, and the manner in which marketing is

²⁹ In reply from Mila to a query from the PTA in the autumn of 2020, in connection with this analysis, it was stated that the number of fibre-optic connections was more than 90,000 at a national level. Mila subsequently submitted data with connections and addresses. When the Mila statistics for the number of fibre-optic local loops were examined, it came to light that it was not possible to locate about 7% of Mila addresses, pursuant to the records of Registers Iceland of homes and companies. These could be buildings and sheds that are not covered by the definition of home or company, lift wells or facilities structures of various kinds or buildings at the construction stage which are not yet registered with Registers Iceland as homes or companies. The PTA decided to only count those fibre-optic local loops that could be tied to an address in the property register. Despite repeated attempts, the PTA has not been able to get adequate explanations for this discrepancy between the first statistics from Mila and the later statistics that are linked to addresses. To err on the side of caution, the PTA uses the lower statistic in this analysis, which constitutes the risk of a certain underestimation of Mila fibre-optic distribution, but it is difficult to come to a precise conclusion on the basis of documentation provided by Mila.

handled. In the figure above, one can clearly see a change in increase of connected fibre-optic local loops when Mila commenced its fibre-optic rollout in earnest in 2016.

191. Distribution plans for fibre-optic local loops vary in their clarity between the largest network operators, and the PTA requested updated information from them in the autumn of 2020. Tengir intends to increase local loops by about [...] per annum until 2023. GR intends to increase connections to [...] on Market 3a and to [...] on Market 3b at the end of 2023. The reason for the higher number is that GR expects to [...]. In the opinion of the PTA, it is unclear whether these GR plans for Market 3b will come to fruition during the lifetime of the analysis. One can expect that the Snerpa fibre-optic local loops will increase by about [...] during the period and that fibre-optic local loops of Austurljós and of municipalities in the final phase of Iceland Optical Connected, will increase by several hundred. Mila could however not provide exact plans for distribution for this period, despite repeated requests from the PTA until the end of March 2021, but the company plans for a similar amount of investment in fibre-optic local loops per annum during the coming years and in 2020 the increase in Mila fibre-optic local loops was about [...]. The PTA therefore estimates that Mila fibre-optic local loops could increase by about [...] until 2023.

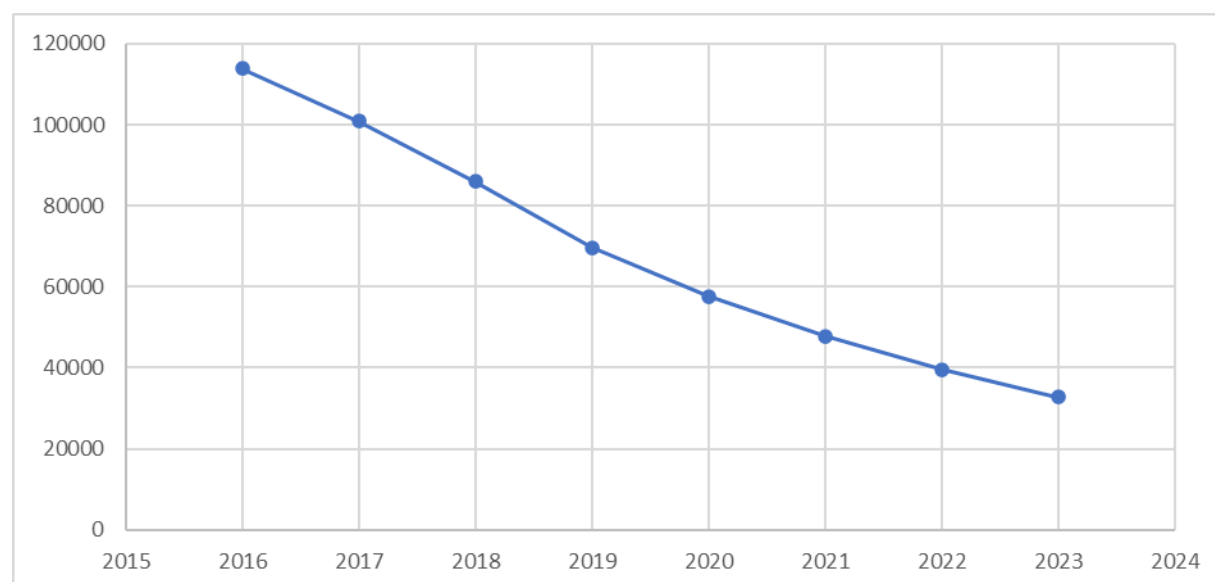
192. According to this, fibre-optic local loops could increase in total by approximately 40,000 to the end of 2023, on the basis of the position at the end of 2020, but it is very unlikely that a significantly large proportion of this will be in areas where fibre-optic has not already been deployed, as a significant part of this fibre-optic will be the second one in the relevant area, particularly in the case of Mila. This increase will however not lead to a corresponding reduction in the number of copper local loops in use. On the basis of current average use of fibre-optic, this could lead to a decrease in copper local loops in use of something near 35% until the end of 2023, given the position at the end of 2020, when there were 58,000 copper local loops in use as stated above. At the end of 2023, there would then be about 24% of local loops in use, that would be copper local loops. For this reason, the PTA considers that the decrease in copper local loops will significantly decelerate during the lifetime of the analysis when compared to what has been the case in recent years.

193. If one examines the decrease in copper local loops in use in recent years and the projection on decrease until 2023, based on the decrease being the same in percentage terms as was the case in 2020, then it is the likely conclusion that copper local loops in use will be something under 33,000 end of year 2023 (see figure 3.20). Copper local loops would then be about 20% of the total number of local loops in use. This projection is subject to various uncertain factors. The PTA considers it however, rather likely that the decrease will not be significantly greater during this period, among other things, because those areas that remain to have fibre-optic deployment are many in the countryside where the economic feasibility of development is often lower than in the more densely populated areas. Those areas where fibre-optic has been deployed on commercial terms in recent years, are the most densely populated areas that have most inhabitants per address. The areas that remain have few multiple dwelling buildings, as applies to many urban kernels in the countryside, and are thus significantly less economically feasible for deployment of fibre-optic networks. The PTA furthermore considers that state aid for development in the countryside will not have a definitive impact on the total number of copper local loops until 2023, and the final objective in government policy is for 99.9% access to fibre-optic for the period up to 2033.³⁰ The allocation taking place this year in

³⁰ Parliamentary opinion on policy in electronic communications for the years 2019–2033.<https://www.althingi.is/altext/149/s/1688.html>

the project, Iceland Optical Connected, will probably reach fewer than 200 local loops, which does not have a significant impact on the total picture. A projection on the basis of decrease of local loops last year gives an indication of a probable reduction of more than 40%, which is somewhat higher than the conclusion of the projection based on distribution plans and usage proportion here above.

Figure 3.20 Possible development in number of copper local loops to and including 2023



194. Leased local loops are not all used to provide Internet connections. If one only examines Internet subscriptions, the proportion of xDSL connections is lower than the proportion of total copper local loops. At the end of 2020, xDSL connections were 30% of all Internet connections, while at the same time the proportion of copper local loops in use was about 36%. If the decrease in xDSL connections continues for the next 3 years at the same speed as in 2020 (about a 15% decrease per annum), then the number of xDSL connections will be somewhat over 26,000 at the end of 2023. This is about 18% of all Internet connections, given that the total number of Internet connections increased by about 1,500 per annum, which is more than the increase that took place in 2019 and 2020.

195. The PTA considers that the above figures demonstrate an overwhelming likelihood that xDSL connections and other copper connections will be a significant part of the retail market during the period of validity of this analysis.

196. Mila has declared that the company plans to phase out its copper network over the next 10 years. In Mila replies, dated 22 September 2020, to a query from the PTA, dated 7 September 2020, there is a company plan for decommissioning copper over the next 10 years. Mila has now acquainted electronic communications companies with this plan. It was stated that the plan was still subject to a number of imponderables and that Mila had not been able to predict the number of connected copper local loops in the next years. The current plan is divided into three main phases, i.e., over the next 5 years, these would be locations where fibre-optic rollout had commenced, was well developed or completed. This should apply to the whole of the countryside (Iceland Optical Connected project), to the Capital City Area and to urban areas to which the above description applies. During the following 5-7 years, there would be locations where fibre-optic rollout had commenced and where there were clear plans in place. This applied to very many urban areas outside the Capital City Area. In the coming 7-10 years

such locations would be urban areas where fibre-optic rollout was very limited today, new buildings would be connected to fibre-optic but where there would be no clear plan yet elaborated. It was then stated that this phasing of the task was presented with reservations and would take into account progress in fibre-optic and 5G rollout in this country. With this information in mind, the PTA expects that during the life of the analysis, Mila will first and foremost phase out copper connections where the company has already deployed with fibre-optic or ensured long-time control over fibre-optic local loops. Given the duration of the plan and the unclear intentions over the next 5 years, the PTA considers that Mila decommissioning of the copper local loops will not have a significant impact on the development of the number of copper local loops that the PTA considers likely over the next three years, see discussion above.

197. As stated here above it is not the case that users hurry to switch to fibre-optic the moment it is available. Figures on general use of fibre-optic networks indicate that a proportion of users are not particularly interested in switching from xDSL connections. The PTA has gathered data on the number of connections of each type in each individual municipality. Those figures show that even in areas where everyone has had access to fibre-optic for a number of years, there is still a proportion of users on the xDSL network. An example of this is Seltjarnarnes. Despite the fact that it is 14 years since GR completed deployment of fibre-optic in Seltjarnarnes and that Mila had commenced fibre-optic rollout to a considerable degree, there were still about [...] % connections there over copper at the end of 2020. Other examples are Reykjavík, Kópavogur, Garðabær, Hafnarfjörður, Mosfellsbær, Akranes and Hveragerði, where in these municipalities the share of copper local loops at the end of 2020, was in the range of 25-40%, despite the fact that almost all users in these municipalities had the possibility of a fibre-optic connection.

198. The PTA has gathered information from GR on users switching from the company's fibre-optic network. Those data show that during the period 1 January 2019 until 30 September 2020, user switching was on average about [...] per month, which is [...] over the whole year, among GR users that had the possibility of GR fibre-optic or Mila copper network.

199. The PTA considers that the above specified statistics on number of users that choose to remain with an xDSL connection, despite fibre-optic being on offer, and the figures for switching from the GR fibre-optic network over to a copper network, clearly show that a significant number of users consider xDSL connections to be an adequate substitute service for fibre-optic connections. The PTA considers that all conclusions of numerical analysis in this section, support the conclusion that copper, and fibre-optic connections belong to the same service market and that they will remain to do so until the end of the period of validity of this analysis. The same can be said for cable connections, i.e., if they will still exist at the end of the lifetime of this analysis.

3.2.2.3 Consumer survey

200. After consultation on the preliminary draft to this analysis, the PTA decided to commission the company MMR (Markaðs - og miðlarannsóknir ehf.) to conduct a consumer survey, which could, among other things, give indications on whether there was substitutability between copper and fibre-optic connections. The consumer survey was conducted in the first half of October 2020, after draft questions had been submitted for consultation to electronic communications companies. The PTA received the MMR conclusions on 20 October 2020.

201. The project was commenced by writing a research question which described in a succinct manner, the answers the survey was intended to provide. The research question was as follows, where there is a progression from a general to specific question:

1. Does the general consumer make such a distinction between Internet service received through fibre-optic on the one hand and through Ljósnet (VDSL copper connection) on the other hand, that it is a deciding factor in the decision to purchase, i.e., whether there is substitutability between the connection options or not.
2. What are the deciding factors in the purchase of Internet service for home use.
3. Is performance (speed) of the connection a deciding factor in the decision to purchase.

202. In the light of the fact that advertised offers on the consumer market have first and foremost been differentiated with included data volume and where price is in most instances the same whether Internet service is transmitted through an electronic communications network based on copper or fibre-optic, the PTA also considered it necessary to investigate user knowledge and awareness of which underlying electronic communications network was being used in the case of respondents. If the survey showed that consumers did not have much awareness about the underlying network, then this was an indication that those networks were not important in their mind, which indicated that there was substitutability between copper and fibre-optic.

203. The PTA also deemed it necessary to thoroughly investigate the factors in decision to purchase that decided the choice of service provider, and whether there was a difference in such decision factors that could be attributed to one type of network more than another, which would then indicate that there was less likelihood of substitutability being in place.

204. In order to be able to analyse the decision to purchase in as clear a manner as possible, respondents were specifically asked whether they had switched Internet service provider recently and what factors had decided this decision to purchase. This decision was in all likelihood, sufficiently fresh in the minds of these consumers that they could better explain its reasons, rather than those consumers that had been with the same service provider for an extended period of time, who were asked about possible reasons for potential choice if they were to choose a service provider today. If those consumers that had recently switched from copper connection to fibre-optic responded with a significant difference in factors for decision to purchase, then this would indicate that it was less likely that there was substitutability between copper and fibre-optic.

205. The PTA thought it likely that if TV service, and/or streaming service and other such services that required significant bandwidth were significantly used to a greater degree by households with fibre-optic connections, then this would be an indication that there was not substitutability between copper and fibre-optic. For this reason, there were questions on such usage.

206. The PTA also considered to be important to ask whether consumers experienced any problems in using their Internet service, e.g., when many streaming content items were being viewed at the same time or when playing online computer games, because of a lack of performance of the connections.

207. In order to be able to analyse answers using significant variables, the PTA considered it necessary to ask in a rather detailed manner about current Internet service, from which company it was received and the type of subscription.

208. The conclusions on questions on the company from which Internet service was received did not provide surprises, as the PTA collects similar data on a 1/2 yearly basis in its regular collection of statistical data. On the other hand, the replies with respect to whether a service was purchased in a package with other service were interesting, as 71% of respondents answered that they purchased this in a subscription package. This is particularly common among Siminn customers, where 85% of them said they purchased Internet service as part of a package.

209. There were questions about individual Internet service or package, as appropriate, and the average of the answers was that they paid something under ISK 8,700 for individual service (the most common answers were ISK 7,000 and ISK 9,000), and something over ISK 17,200 for a package (the most common answer was ISK 15,000). These average answers and the most common answers fit well with the electronic communications companies' tariffs, which indicates that consumer price awareness is generally quite good.

210. Answers to the question about whether the respondent knew which kind of electronic communications connection the Internet service was received through where such that 65% answered in the affirmative, i.e., that they knew, 24% answered in the negative, and a further 11% answered that they did not know, and such an answer may be equated to a negative answer to the question. More than 99% of respondents took a position on this question.

211. A question was then asked on whether the respondent could specify the type of connection, where options were provided for all of the main names and trade names for technical solutions used for electronic communications connections over copper lines, fibre-optic or through mobile networks. All respondents were asked this question, including those that said that they did not know what type of connection they had. They were also asked if they knew which company owned and operated the connection. More than 99% of respondents took a position on these questions. When the question was analysed by geographic regions, there was little of any significance that came to light. One could mainly mention that respondents who live in urban areas in Reykjanes or East Iceland, are less aware of the type of connection they have, i.e., 27% and 31% of respondents respectively. Common figures from other areas ranged from 9% to 20%. In addition to this, inhabitants in urban areas in East Iceland mention copper local loops in a higher proportion to others, i.e., 18% of respondents, while common figures for other areas ranged from 2-6%.

212. With respect to the question on TV or content streaming services, 69% of respondents purchase such service and over 82% of those who do that, purchased it as part of a package that includes the household's Internet service. When asked what this service was, and where it was possible to indicate more than one option, it came to light that 88% of respondents named Sjónvarp Símans (TV) or Sjónvarpsþjónusta Símans (TV), 54% Netflix, 24% Stöð 2 (Vodafone), 18% Sjónvarp Vodafone, 16% Disney+ and fewer named another service. It was not possible to see a significant difference by age or location, nor by family size, as purchase of TV and/or visual content streaming service is common. What is however more important is that purchase of such service does not seem to be according to the underlying electronic communications network. What one can see there is mainly that those who purchase Sjónvarp Símans (TV) say mainly that they are connected through Ljósnet, or through copper local loop than through other networks that Siminn has offered, other than those on Mila networks or

networks of smaller players like Tengir and countryside networks and up to this point in time not on the country's largest fibre-optic network - i.e., the GR network. Customers of the GR fibre-optic network have simply not had the option of purchasing the service. Siminn has however offered its visual content through an OTT solution, which has been possible to use on other underlying networks since August 2018, but however until February 2021, only through a special set-top box, which has to be leased from Siminn. This solution, however, has not been used much in comparison with the IPTV solution. No significant difference could be seen in purchases of Netflix, where 59% of those who connected through fibre-optic purchased the service as did 56% of those who connected through Ljósnet (VDSL).

213. Consumers generally do not experience problems with the performance of the connections, but 16% answered this in the affirmative. Of those who connected through fibre-optic, 10% answered this in the affirmative, as did 22% of those who connected through Ljósnet (VDSL). This difference is significant when one considers the deviation limits of the questions, though in the opinion of the PTA, the difference is not large. The group that said that it connected through copper local loop was small, and there one can find the main difference, as 29% answered this question in the affirmative and furthermore, respondents that live in urban areas in East Iceland are an exception as 40% of them answered that they experienced difficulties because of lack of performance.

214. No difference that can be considered significant can be found in the replies on how many TV stations, set-top boxes or streaming providers were in use at the same time as a maximum through the underlying network.

215. One question asks for the three main reasons for choosing service provider if one were to choose today. A list was provided of the main issues that make a difference and there was also an option to provide one's own answer. It came to light that the price of the service is the factor that matters most in consumer choice of Internet service provider, if one were to choose a service provider today. Next was the quality of service provided by the service provider and in third place was speed. This indicates that varying possibilities for speed in copper and fibre-optic connections is not a decisive factor when it comes to consumer choice.

216. There was also question on whether consumers had switched Internet service operator and those respondents that had switched provider within the last 12 months, were then asked for the main reasons for having switched. The respondents then mentioned price in the vast majority of cases, i.e., 32%, quality of service came next at 13% and packages of varying service after that with 12%, as the main reasons for the switch. The speed of connections was in 5th place with 5%, for reasons for having recently switched service provider. This harmonises well with the factors named as those that were most important for a possible choice if that choice were made today.

217. There were questions about various quality aspects of connections. These were issues such as *"the connection always works"*, *"the connection meets the needs of the household"* and negative issues such as *"I experienced the connection breaking or is intermittent"* or *"I experienced that the picture from a streaming provider breaks"*. When consumer perceptions of the quality of their connections are examined, it comes to light that consumers are generally very, or rather satisfied with the quality of their connections, and consider them to meet the needs of the household. At the same time, consumers generally do not experience problems or disruption to the service. It cannot be seen that there is no significant difference in consumer perceptions of the quality of Internet service to the home, that can be attributed to the

underlying electronic communications network through which the household Internet service is received.

218. The PTA endeavoured to research price sensitivities of consumers using an SSNIP test, where questions were asked about reactions to a small but significant and persistent price increase. It is problematic to ask such questions in such a manner that the respondents have a good understanding of what is meant in the short time that respondents normally give themselves when answering such networks surveys. There is also the risk that answers to such questions will not be fully thought out when one asks questions in this manner, and on this platform. In order to simplify the comparison and to put it in context for respondents, the PTA related such an increase to the annual price of common Internet subscriptions.

219. The PTA considers that the most significant conclusions of the survey that can relate to assessment of substitutability are as follows:

- That 35% of respondents appear not to know the type of the household's electronic communications connection, when asked directly.
- The purchase of important service items such as visual content streaming is equally common on the underlying networks.
- Perception of quality, that the connection meets the needs and that problems are not experienced with performance are similar, regardless of underlying network.
- Price is by far the most common reason for having recently switched service provider, reputation of the service provider and packages of included service come next. Speed is in 5th place, after the reply that the employer chose the connection. The fact that price sensitivity is measured rather high, supports this conclusion.
- Price, quality of service provider and speed, in this order, are the factors named to be most important when respondents are asked to name important factors if they imagine that they were about to switch service provider.
- The question of reactions to a price increase of one kind of connection showed that 25% of users who have fibre-optic connections, consider it rather unlikely that they would switch to Ljósnet (VDSL), if the price of the connection was increased, while 33% considered it very, or rather likely. If one does not take into account those who answered, "don't know", the proportion of those that would be very, or rather unlikely to switch was about 36%, while those that were very, or rather likely to switch are about 48%.
- Taking all of the above into account, the PTA can come to no other conclusion than that the survey strongly indicates that there is substitutability between Internet service received over copper connections and that received over fibre-optic.

220. The PTA believes that the conclusions of the consumer survey support the conclusion that there is still substitutability between copper and fibre-optic connections at retail level. A large proportion of consumers are not aware of the type of underlying carrying layer that supports the connection. Price is the factor that most respondents put in first place when asked about the reasons for choice of service provider, and the speed of the connection is much lower in the priority ranking. It seems that the majority of users of copper connections do not perceive

a lack of speed. A larger proportion of respondents say that they are likely to switch from fibre-optic to VDSL, in the event of a small but significant and non-transitory price increase, than the proportion that considers this unlikely.

3.2.2.4 Supply-side substitutability

221. With regards to the supply-side, a chain of substitution between connections with varying speeds and even quality is more likely than on the demand-side, if electronic communications companies can change their service offer in a relatively short space of time, taking into account the core networks on which the service is based. In most cases it is possible to upgrade from a lower speed xDSL connection to a faster connection such as VDSL. Then companies are able to switch from copper to connections based to some extent or entirely on fibre-optic, either by deploying their own or by choosing the quicker and less expensive option of leasing access in another party's network. Supply-side substitutability is on the other hand, probably rather homogeneous, as it is unlikely that a company that operates fibre-optic connections will replace them with xDSL connections.

3.2.2.5 The conclusion on substitutability between copper-, cable- and fibre-optic connections

222. Taking into account the service offers and market conditions in this country and practices elsewhere in the EEA, the PTA considers that a substitution chain exists in this country, which supports Internet through a copper network, cable systems and fibre-optic networks belonging to the same market. In addition to this, homogeneity in pricing and service offer on varying Internet connections strongly indicates that they belong to the same market.

223. The PTA considers there to be every likelihood that the substitutability in question will exist throughout the lifetime of this analysis, which is estimated to be three years, regardless of what may transpire after that time. Should there be significant changes on the market within the next three years, which reverse this conclusion, the PTA will immediately commence a new analysis of the relevant wholesale markets.

224. Taking into account the above specified discussion in Sections 3.2.2.1 to 3.2.2.4 here above, the PTA considers that Internet connections provided in this country over copper network, cable systems and fibre-optic networks belong to the same service market and will do so throughout the lifetime of the analysis.

3.2.3 Distinction between standard broadband access and high-quality access at the retail level

225. In the EU Commission explanatory note to the recommendation on the relevant markets from 2014 on which the current ESA recommendation from 2016 are based, a distinction is made on retail markets for standard access service and markets for high-quality connections.³¹

³¹ SWD(2014) 298 COMMISSION STAFF WORKING DOCUMENT, EXPLANATORY NOTE Accompanying the document Commission recommendations on relevant product and service markets within the electronic

226. Many SMEs have no need for an Internet connection, other than that which is offered on the market to individuals. The PTA considers there to be no need to distinguish between such service to companies and service to individuals. The service is generally the same, sold at the same price and underlying services and network at wholesale level are the same. Users from either group can equally use service that is generally offered to the other group, as this is a case of standard homogeneous service. Electronic communications companies that concentrate on selling to homes can with relatively little effort alter their market emphases and start offering services to companies, or vice versa. For this reason, the PTA considers such service to belong to the same retail market as Internet connections to homes.

227. Traditional home Internet connections are not however adequate for all companies. This includes companies that have operations at many locations that need to have good electronic communications with each other, and also companies that make high demands on quality, uptime and service level. Such companies need a service other than standard Internet connections and they purchase services such as IP-VPN, Ethernet-VPN and leased lines of various types. Service with these companies is often tailored to the needs of each customer, because standard mass-market service types do not meet their needs.

228. It is the characteristics of the service that weigh heaviest when companies choose high quality connections. Companies that need high speed and quality cannot choose other options, such as standard Internet connections, and it is therefore unlikely that they would switch to standard connections even if the price of high-speed connections were to increase. This indicates that substitution on the demand-side is small between high-quality connections and standard Internet connections.

229. In the domain of high-quality connections, the nature of the service is to a large extent decided by the needs of individual customers. It is not possible to offer them standard Internet connections, but discussion needs to take place between buyer and seller on crafting the service. This means that electronic communications companies need to use different marketing methods than those used on the household market, and they furthermore need to have the capacity to set up various types of services, according to the needs of each party and to ensure stability in operation and in quality of the service.

230. This difference in marketing and in the operation of high-quality connections and standard Internet connections makes it unlikely that a company which only offers standard connections will begin to offer at short notice, high-quality connections if a small but significant and non-transitory price increase should occur in the latter. This means that supply-side substitutability is unlikely.

231. The PTA has not seen any evidence that circumstances in Iceland are, with respect to the difference between standard Internet connections and high-quality connections, significantly different from what applies elsewhere in the EEA. As it will neither be deemed that there is demand-side or supply-side substitutability between these service types, the PTA considers that the distinction proposed in the ESA recommendations on the relevant markets from 2016 applies in this country and that therefore standard Internet connections on the one hand and

communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, Section 4.2.1.

high-quality connections on the other hand, will be considered to belong each to their own service market.

232. In its preliminary analysis, the PTA planned to move Mila's P2P Ljóslna (Fibre line) that electronic communications companies purchase from the company and Ljóslna (Fibre line) to mobile phone transmitters, which are now on Market 6 (currently Market 4), pursuant to the PTA Decision no. 8/2014, over to Market 3a. In the additional consultation document, it was stated that when one considered the retail products that are based on the relevant wholesale Markets 3a and 3b, one could see that the Mila's Ljóslna did not harmonise with such wholesale products and was not in the most common chain of substitutability of the standard product covered by the analysis, i.e. a chain of three products where the first were products on the market for fixed line local access, i.e. local loops, which in turn were used as the basis for products on the market for central access, i.e. bitstream. This bitstream was finally purchased as a wholesale product by retail companies that operated on the market for mass-market products to provide its customers with Internet service and other related service, i.e., both homes and companies, for whom such mass-market retail products sufficed. The Mila's Ljóslna product was not entirely new as a wholesale product in such mass-market offer of service.

233. It generally applied to Mila Ljóslna (Fibre line) that such lines were not normally deployed in the same investment projects as the public local loop network, which was deployed in the comprehensive network in Mila's fibre-optic rollout. They still required a special order and as appropriate, were only deployed against a share of start-up costs. There were thus other criteria for Mila investment in the Ljóslna in question than in the general distribution of fibre-optic in the company's access network.

234. The PTA therefore planned to retract the amendment that had been announced in the preliminary draft to the effect that the Mila Ljóslna should be defined as part of the public local loop network and thus belong to Market 3a. In Mila comments, dated 10 July 2020, on the above specified preliminary PTA assessment, Mila presented arguments for the Ljóslna in question not belonging to Market 3a but rather to Market 4. The Mila Ljóslna has up to this point in time belonged to Market 6, pursuant to the numbering from 2008, i.e., terminating segments of leased lines. The PTA plans that Mila Ljóslna will belong to Market 4 pursuant to the numbering of markets from 2016, i.e., local access of high quality, and work on that market analysis is now under way at the PTA.

3.2.4 Distinction between standard broadband access provided at a fixed location and wireless service.

235. In the Explanatory Note to the EU Commission recommendation on the relevant markets there is a short discussion on the distinction between broadband service provided at a fixed location and wireless broadband service.³² Among other things it states there that from a

³² See; SWD(2014) 298 COMMISSION STAFF WORKING DOCUMENT, EXPLANATORY NOTE Accompanying the document Commission recommendations on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, page 35.

consumer point of view, wireless solutions can in some instances be considered a substitute service for Internet connections provided at a fixed location. 3G mobile phone service has however generally not been considered to be a substitute service as this service is mainly designed with mobility in mind and does not have the same speed and reliability as service provided at a fixed location. It is stated that the position on mobile phone service may need to be rethought subsequent to increased distribution of newer technology which is more powerful than 3G. The Commission considers it problematic to generalise on substitution possibilities for mobile phone service in the future and that NRAs should assess this specifically in each individual state.

3.2.4.1 Broadband mobile phone access

236. Mobile phone networks today offer broadband data transfer service. Connection with the end user takes place through a mobile phone or other hand-held device which can connect to a mobile network and the signals are sent wireless between the end user's device and the mobile phone network stations. Mobile phone network stations are then connected to core network units with a fixed line, often fibre-optic. Instead of hand-held devices it is possible to install fixed equipment at the location of the end user, which receives signals from the next mobile phone station.

237. Mobile phone connections on offer in this country today generally have download speed in the range of 25-100 Mb/s. The newest mobile phone transmitters can handle more, but the endpoint device does not necessarily support greater speed. The number of devices connected to the same transmitter at any given time can impact download speed, as the devices share the bandwidth on offer from the transmitter. Other factors that can influence the speed of the connection are for example distribution conditions, signal strength, frequency range used by the transmitter and distance from the transmitter.

238. Mobile phone network connections can generally carry the main services transmitted through Internet connections, even 4K TV service to some extent. These connections can however be more sensitive to external influences rather than fixed line connections, which can inhibit possibilities for use. In this connection one can mention that high and stable speed combined with short ping are important factors in using HD visual content and in computer games that rely on the Internet.

239. The pricing of Internet connections provided at a fixed location and by mobile networks is quite similar and should generally not hinder users in switching between them.

240. With respect to substitutability between connections provided at a fixed location and mobile network connections, the former is generally not a substitute service for a mobile network service as mobility is lacking. Substitution in the other direction is to some extent conceivable given the usage possibilities described here above, but to assess how consumers see substitution it is appropriate to take into account development in the use of connections provided at a fixed location on the one hand and mobile network communications on the other.

In the following table one can see statistics on the development in the number of connections etc. from year 2014.³³

Table 3.1. Development of various electronic communications services 2014- 2020

	2014	2015	2016	2017	2018	2019	2020
Total number of mobile phone subscriptions	415422	429169	440449	461379	472072	475842	475539
Mobile phone subscriptions with voice telephony	370047	383919	391209	401231	411361	413446	421384
Data subscription only	45375	45250	49290	60148	60711	62396	54155
Users that use Internet in mobile phones	238793	269075	304677	328243	348212	355398	365076
Data volume (GB) and mobile phones	6100334	10225075	16652368	25365262	36555618	54838954	81904271
Proportion of 4G SIM cards	29.6%	43.3%	59.1%	65.8%	78.5%	83.4%	85.0%
xDSL connections	88799	89453	84846	75631	63743	51356	43362
Fibre-optic connections	29692	33962	42352	56649	72253	86520	97292
Total number of connections provided at a fixed location	118491	123415	127198	132280	135996	137876	141816
Fixed Wireless Connections (FWA)	1103	982	793	1294	560	391	274
Connections through cable modem				1050	1433	974	888

Source: Post and Telecom Administration.

241. Demand for mobile phone service has increased steadily during the past years. Since the end of 2014 and up to the end of 2020, mobile phone network subscriptions have increased from 415,422 to 475,539, which is about 15%. Data volume in mobile networks has also increased very significantly and is still on the increase. Subscriptions that only include data transfer are about 10-11% of the total number of mobile phone subscriptions. Subscriptions that are only for data transfer in mobile networks have increased significantly during the period, that is to say from 45,000 in 2014 to 60,000 in 2017 and in 2020, such subscriptions appear to be declining somewhat after a three-year period of stagnation and they were 54,000 at the end of 2020. The increase in connections provided at a fixed location has been about 16% during

³³ This table is based on data from the regular annual collection statistics from electronic communications companies. They are therefore comparable and contiguous annual data.

Because of problems in collecting data from municipalities and which in recent years, have received grants from the project Iceland Optical Connected, such networks do not appear in this regular statistical report. This represents a number of parties, but they are all very small in a national context. The PTA estimates that fibre-optic connections in use are just under 3000 more at the end of 2020 than stated here.

the period. It can therefore not be seen that customers are moving from fixed line service over to mobile network service with respect to Internet connections for homes and/or companies.

242. The increase in mobile phone network connections has been rapid in recent years. It does not however appear to have affected steady growth in the number of connections provided at a fixed location. Connections provided at a fixed location increased by about 2-4% per annum, and there is no discernible change in this trend. Though one can find instances where households make do with Internet service over a mobile network, the number of customers in fixed line service and the difference in pricing between mobile network and fixed line services indicate that users are purchasing mobile network connections as additional service, rather than turning their backs on fixed line connections and purchasing mobile connections instead.

243. In the Scandinavian countries³⁴, mobile network service is not considered to belong to the same service market as fixed line connections, among other things with reference to users regarding data transfer through mobile networks as an addition rather than substitute service. The position is generally the same elsewhere in the EEA. Most indications are that the situation is the same in this country. In addition to this, most data traffic through wireless devices is through Wi-Fi, which is connected to a fixed line connection.

244. With respect to supply-side substitutability, the PTA considers that companies that only offer one type of connection can generally not change their offer at short notice. The majority of companies in this country are however operating both on a fixed line network and mobile network. Mobile network operators like Vodafone and Nova do not, however, operate their own fixed line network but instead they purchase access to parties such as the Siminn Group, GR and Tengir.

245. As is stated in Section 3.1.5.5 here above on mobile networks, there is not yet much experience of 5G in Iceland. Reference is made to that discussion.

246. With all of the above in mind, the PTA considers that consumers generally do not see mobile network service as a substitute service for fixed line connections and they therefore do not belong to the same retail market.

3.2.4.2 Fixed wireless access

247. Fixed wireless access connections (FWA) connect the end user's receiver equipment with wireless transmitters using a wireless connection. Transmitters are then connected to the backbone network with fixed line connections. Users' receiver equipment is fixed, and the service is not mobile as is the case with mobile network service. The most common standard in connections like this is WiMAX.

³⁴ Denmark, Engrosmarkedet for lokal netadgang på et fast sted (marked 3a) Markedsafgrænsning, markedsanalyse og markedsafgørelse 17 August 2017, pages 54-55 https://erhvervsstyrelsen.dk/sites/default/files/2019-02/afgoerelse_paa_marked_3a_0.pdf

Norway, Analyse av grossistmarkedet for lokal tilgang til faste aksessnett (Marked 3a) og grossistmarkedet for sentral tilgang til faste aksessnett (Marked 3b) 20 December 2018, page 40 <https://www.nkom.no/marked/markedsregulering-smp/anbefaling-2016/marked-3a>

Sweden, Utkast till beslut om marknaden för lokalt tillträde till kopparnät 22 May 2019, page 64 https://pts.se/globalassets/startpage/dokument/icke-legala-dokument/remisser/2019/telefoniinternet/3a3b/utkast-till-beslut_marknad-3a-koppar_dnr-15-7200_190522.pdf

248. Fixed wireless connections can provide up to 50 Mb/s speed, but there are many factors that can influence the speed and quality of connection, such as weather conditions, interference and the number of users connected to each transmitter. In other respects, the service is similar to a fixed line connection, and it can carry TV service.

249. In this country today, there are five parties that offer fixed wireless access connections. The number of users is however very small, a total of 274 in the whole country and as low as one customer with some of the service providers. Many service providers choose to direct their customers to other solutions where possible and this means that the number of customers on a service has gradually decreased in recent years.

Table 3.2 Development of Internet service through wireless connection 2014- 2020

	2014	2015	2016	2017	2018	2019	2020
Fixed wireless access (FWA)	1103	982	793	1294	560	391	274

Source: Post and Telecom Administration.

250. The price of the service spans a rather wide range, i.e., from a little over ISK 5,000 to just under ISK 20,000 per month. The amount of data included in subscription options is often less than in subscription options offered on fixed line connections. Then it is necessary to purchase and install an aerial at the place of use, which involves some cost.

251. In light of the fact that there is little demand for the service, and by taking into account the limitations to which it is subject, the PTA considers it unlikely that users would be prepared to switch from a fixed line connection to fixed wireless access in the event of a small price increase for the former. The service is first and foremost used when it is not possible to provide a fixed line connection, given current circumstances. It is therefore mostly used in summer houses and homes in the countryside where there is no fixed line connection that carries significant bandwidth. Locations where such circumstances pertain are rapidly decreasing with increased distribution of fibre-optic in the countryside.

252. Some companies provide fixed wireless service on frequencies subject to licence (3.5 GHz). Their frequency licences expire in the latter part of 2021 and it is almost certain that they will not be renewed, as there are future plans to use the frequency ranges in question for another purpose (5G). This situation makes it likely that the importance of the service will decline even further.

253. For the above reasons, the PTA considers it unlikely that fixed wireless access belongs to the same market as fixed line connections, and in any event, they are so small in number that they have no significance in connection with analysis of the markets being examined here (Market 3a and Market 3b).

3.2.5 Definition of the relevant service markets at retail level

254. The retail market based on wholesale services on Markets 3a and 3b constitutes user connections at a fixed location that enable users to access the Internet.

255. Taking into account the discussion here above, the PTA considers that a service provided over a fixed line can belong to the relevant retail markets, whether by copper wire, cable system or fibre-optic. The varying xDSL services on offer on copper networks are all deemed to belong to the same market as do connections through fibre-optic and cable systems. As there is a regular progression from one xDSL technical solution to the next, as well as cable systems and fibre-optics they will be deemed to belong to the same market, with the regard to the chain of substitution principle.

256. Cable systems that carry TV content by coax have never enjoyed wide distribution in Iceland. They were sometimes developed on a very limited scale before independent radio and TV stations began operations, where they distributed content within a specific district or part of a town. The systems ceased operations when access to TV content was better and where demand was met in a general manner. One system is still operating, and it distributes TV content for the holders of the rights to the content to subscribers in Reykjanesbær. The company also operates an Internet access service through a cable system. As the system has very limited distribution, in fact only within one municipality and to just under 4,000 homes, it has a negligible market share at national level. Kapalvæðing active connections on the cable system in question are only [...] which means that the usage proportion is therefore less than [...]%. Nor is the company's share in retail Internet service within the area significant, i.e. just over [...]% at the end of 2020. Mila operates a VDSL network in the municipality in question and now both Mila and GR have jointly launched fibre-optic rollout in the municipality in question, which is expected to be completed during 2022. This will without doubt further diminish the importance of the cable system in question and Kapalvæðing has furthermore recently made an agreement with GR on bitstream access to the GR fibre-optic network with retail sale of Internet service. Nevertheless, it is the PTA conclusion that such connections belong to the relevant retail market.

257. Fixed wireless access connections can carry service which is in many respects comparable to fixed line connections. On the other hand, small demand for the service indicates that it is not in reality a substitute service. Negligible use of fixed wireless connections leads the PTA to conclude that there is no reason to further examine this service type in this analysis.

258. Mobile network service can be used to receive Internet connections with relatively broad bandwidth. The PTA however considers that there is not sufficient substitutability between fixed line connections and mobile network connections for them to be considered to belong to the same market. Statistics on development in the number of connections do not indicate that users are switching from fixed line connections over to mobile networks to any significant degree, but it is rather the case that users consider mobile phone network service to be an additional service.

259. Connections for households and companies are in many instances very similar or have the same characteristics and can therefore belong to the same market. Some companies have on the other hand, a need for special connections with more bandwidth and/or a higher service level. Such connections belong to a separate market for high-quality connections (Market 4/2016).

260. The PTA conclusion regarding retail markets for standard broadband access is that the following services belong to the market:

- Broadband connections through copper network with xDSL technology
- Broadband connections through fibre-optics

- Broadband connections through cable systems

261. The PTA considers that satellite connections, mobile network connections, fixed wireless access connections and high-quality connections for companies do not belong to the same retail market.

3.2.6 Competition in retail markets

262. In the explanatory note to the EU Commission recommendations from 2014, on which the ESA recommendation from 2016 is based, it is stated that before wholesale markets are defined, one should assess whether there would be effective competition at retail level if obligations on the underlying wholesale markets were not in place (the modified greenfield approach). If it is not thought that there would be effective competition in such a situation, then the wholesale markets should be examined, and this examination should commence with the market that is first in the value chain (Market 3a). It shall subsequently be evaluated whether there is a need for obligations at the next downstream wholesale level (Market 3b). In exceptional cases, if obligations on the wholesale markets in question would not suffice to create effective competition on the retail markets under discussion, it would be possible to consider obligations on the retail markets in question.

263. Market analyses in the EEA have generally shown that on the retail markets for standard broadband connections and high-quality connections, there would be a lack of competition if obligations were not in place on the underlying wholesale markets (one of them or others), particularly in states where there is only one network with national coverage. In this country, it is only the Mila network, which is close to national coverage, when one considers the company's coverage of copper and fibre-optic network, and it is therefore likely that the situation on the relevant retail markets in this country would be similar to what is generally the case within the EEA, if obligations at wholesale level were not in place. At end of the year 2020, the GR fibre-optic network reached about 67% of the country's households and companies and the Tengir network reached about 6% of households and companies. The Mila market share of the wholesale market in question is however very high, standing at 57% at national level on Market 3a and Market 3b.

264. The Siminn Group strong position on the retail market, where the company's market share has been fairly stable since the last analysis and was just over 46% at the end of 2020, and on the above specified wholesale markets, strongly indicates that if it was not for wholesale obligations, the Group could operate without concern for competitors or consumers and could maintain access barriers to infrastructure, systems and service. The Siminn market share of the retail market has in reality only decreased by a very few percentage points since the last PTA analysis of the wholesale markets in question in the year 2014 and this share now stands at just over 46% as described above. In July 2020, Siminn reached an agreement with GR on bitstream access to the GR fibre-optic network and Siminn began to provide its services via GR's network on 25 August 2021. Because of this agreement, and other things being equal, the PTA considers that this agreement will lead to the Siminn market share, reaching over 50% towards the end of the lifetime of this analysis. Those Siminn competitors that have improved their market share on the retail market, have in recent years not been seeking many customers from Siminn. For

example, Nova seems first and foremost to have encroached on Vodafone market share during the past years.

265. A company's market share is an important factor in market analysis. It is however not the only factor that decides whether a company is designated as having significant market power, but it can give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to accepted case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the guidelines, a suspicion that single dominance exists with one company does not arise until market share has reached at least 40%. This depends, however, on the size of the company in comparison with its competitors. In some instances, a company with market share of less than 40% can be deemed to have significant market power. A company with market share of less than 25% would in all likelihood not be considered to have dominance, except in the case where it had joint/collective dominance with another undertaking.

266. Despite the recent powerful entrance of Nova to the market in question and the merger of Vodafone and 365 miðlar in 2017, the Siminn market share has not declined to any significant extent during the last years and was as stated above, more than 46% at the end of 2020. At the same time the company's main competitor, Vodafone, lost significant market share which stood at 28% after having reached 37% at end 2017. The Siminn Group's offer of the Heimilispakkinn bundle, which commenced in October 2015, which is at least a triple play fixed line service and even a quad play, with mobile phone service where customers of the content provider are directed at their own service or service of related companies at advantageous terms, seems to be one of the reasons for this situation on the retail market. The success of the Sjónvarp Símans Premium content service, which is part of the bundle in question, seems to have played a very significant role in this matter. It doubtless strengthens the Siminn position that the company acquired three-year broadcasting rights to English football from and including the 2019-2020 season, which began in August 2019. These rights had for many years been held by Siminn's main competitor, Vodafone. The Siminn breach of Paragraph 5 of Article 45 of the Media Act, which appears to have improved Siminn's position on the retail markets in question, has been covered here above. There will be more detailed discussion on this competition problem in Sections 10.2 and 11.2 here later, when competition problems are covered. Even without the success of this bundle one must consider that vertical integration and the position of the Group are such that it would have significant power and opportunity to apply access barriers if it was not for the obligations which now rest on the Group's wholesale operations.

267. As is stated in later sections in this analysis, the PTA considers that there are significant access barriers to the wholesale markets for local and central access. In general, parties commenting on this analysis, with the exception of the Siminn Group, agree with this assessment. Internet service will not be marketed at retail level unless the service provider in question has access to wholesale procurements on Markets 3a and/or 3b. For this reason, one cannot see otherwise than if obligations were not in place at wholesale level, there would be significant entry barriers to the retail market. Even if obligations were in place, one could still see access barriers to the retail market for Internet connections, as there are not many companies fighting for market share on that market.

268. With the above in mind, the PTA considers it clear that competition is not active on the retail market in question, despite obligations on Mila on the above-mentioned wholesale markets. The position on the retail markets would doubtless be worse if it were not for the

above specified wholesale obligations. For this reason, the PTA considers it important to continue analysing the situation on the wholesale markets in question.

4 Definition of wholesale markets

4.1 General

269. After having examined retail markets for broadband connections, the time has come to define the upstream service markets at wholesale level. The factors that are considered to characterise the markets will be examined according to the explanatory notes to the said recommendation and then the markets will be further delineated with respect to the discussion on the retail market in Section 3 here above with respect to the wholesale service that it is possible to offer on the basis of existing networks and networks that are or are expected to come into existence in the near future.

4.1.1 Market analysis according to the recommendation on relevant markets and its explanatory notes

4.1.1.1 General

270. In the EU Commission recommendation on relevant markets from 2014 and in corresponding ESA recommendation from 2016, two main wholesale markets that underlie retail sale of Internet connections are defined, and they are:

- a. Wholesale market for local access with fixed connection (Market 3a).
- b. Wholesale market for central access provided at a fixed location for mass-market products (Market 3b).

271. These markets and related retail markets are covered in detail in the explanatory notes to the said EU recommendation.³⁵ After discussion on retail markets, there is discussion on the general development of networks and the impact that the development has had on the relevant wholesale markets, which were previously defined as wholesale access to access networks provided at a fixed location (including bundled and unbundled access) and wholesale bitstream access that were analysed with the PTA Decision no. 21/2014.

272. Access to networks for the purpose of providing Internet service can be in varying layers of the network and it varies where purchasers of wholesale access choose to connect to the network and how much service they buy. In recent years, there has been major development in fibre-optic networks, which will foreseeably continue during the next years. The migration of services from copper networks to fibre-optic networks has resulted in significant changes in network topology, and in the offer of varying access services. This has led to the need to review definitions of the wholesale markets that Internet connections are based on.

273. The wholesale markets that were previously connected to broadband connections in retail were on the one hand, access to access networks provided at a fixed location (including bundled and unbundled access) normally called local loop leasing, and on the other hand broadband access, also known as bitstream access. In distinguishing between these wholesale markets, the

³⁵ See discussion in the explanatory notes, pages 37-45.

emphasis was placed on whether it constituted access to non-active network parts (local loops) or virtual access in the form of bitstream connection, on how much latitude the retailer had to form his service and on where in the network access was provided. Access to local loops was generally provided in a telephone exchange (MDF) or in a street cabinet and gave the purchaser considerable latitude in forming and controlling his retail services. Bitstream access is on the other hand, provided with a virtual bitstream connection to which the purchaser connects in a telephone exchange or deeper in the network. With the distribution of new networks, access possibilities have changed, and this has made the distinction between local loop lease and bitstream access less clear, which calls for a changed definition of the markets.

274. New fixed line high speed networks are built in part or entirely on fibre-optic. In some instances, the fibre-optic local loop is laid all the way from the Main Distribution Frame (MDF) or Optical Distribution Frame (ODF) into the user's premises. Such networks are either Point-to-Point, that is to say a whole fibre lies from the ODF into the user's premises, or Point-to-Multipoint where one optical fibre is shared part of the route and is divided later into more channels to individual users. A common design of Point-to-Multipoint networks is what is called PON technology which constitutes virtual distribution of light with a splitter.

275. Another method for constructing high-speed networks is to lay the fibre-optic from the ODF to the street cabinet. From the street cabinet to the user, copper lines are used which are already in place. Then VDSL technology is often used where this is possible and equipment for such a service is located in the street cabinet. When VDSL is used, local loop lease in the traditional understanding of the term can cause interference to the VDSL service. For this reason, it can be necessary to provide access with active equipment in a telephone exchange or street cabinet instead of leasing a physical local loop. The same can apply in pure fibre-optic networks if they are developed as Point-to-Multipoint.

276. In the opinion of the EU Commission, there is reason to review the boundaries between the relevant wholesale markets and to base differentiation rather on the usage characteristics of access solutions instead of focusing on whether the connection is physical or virtual. The Commission presents a number of key factors that need to be examined when distinguishing between Markets 3a and 3b. First one shall examine where delivery of the service takes place, that is to say whether it is close to the user or central in a fixed electronic communications network. Second, it is necessary to examine the architecture and characteristics of the wholesale service, particularly whether a virtual connection offers guaranteed bandwidth and provides similar possibilities to local loop leasing. Third, one should take into account the latitude that the purchaser has to form his service offer through the connection with respect to which network factors and procurements are under the control of the network operator on the one hand and the purchaser on the other.

4.1.1.2 Characteristics of wholesale market for local access with fixed connection (Market 3a)

277. According to the above specified explanatory notes to the EU Commission recommendation on the relevant markets³⁶, analyses in Member States have not shown a break in the chain of substitution between broadband connections through copper on the one hand and fibre-optic on the other and for this reason it is generally considered correct to view all of them as part of the same wholesale market.

³⁶ See pages 42- 45.

278. Access to a physical local loop has the advantages that it guarantees freedom to the lessee to form his service and to use the technical solutions he chooses. In cases where it has not been possible to enable physical access to fibre-optic local loops and where renting a local loop from the street cabinet would impair the quality of the VDSL vectoring service, the NRAs have prescribed virtual access instead of physical access to the local loop, with the reservation that this should be reviewed if solutions emerge that make physical access possible. In the light of these implementations, the Commission considers it appropriate to deem virtual solutions to be part of the market if they have similar characteristics to local physical access. The characteristics that need to be in place for virtual access to be considered to belong to the market are the following:

- 1) Access is local, that is to say that the purchaser receives access close to the end user and not in a connection point that serves a large part of the country or the whole country, as is customary with bitstream access. Local access can be in a telephone exchange, MDF, ODF or in a street cabinet. Though such virtual access services, are intended to replace local loop lease, the points of delivery for virtual access do not necessarily need to be as many as the points of delivery for copper local loops.
- 2) Access is of a general nature and provides purchasers with service independent carrying capacity, where a specific bandwidth is guaranteed in accordance with the needs of the customer within the limitations that are normal, given the existing base network. Access needs to be unbundled which means that a reserved connection is set up from the end user to the location where the access is delivered. The technical characteristics of the connection and its carrying capacity should only be limited by the physical capabilities of the technical solutions available to support services analogous to local loop lease (e.g., multicast, where appropriate).
- 3) Purchasers of access need to have control of access connections that equates to their functioning like local loop lease. The possibilities for service differentiation and innovation also need to be comparable. In this connection, an access purchaser's control of basic characteristics of the network, of network functionality, operations and business processes and also of support services and systems (e.g., user equipment) should enable him to control the characteristics of user service and its quality.

279. In order to delineate the relevant market more precisely, one needs to evaluate competitive pressure from other types of networks such as (TV) cable systems and mobile networks. The Commission considers it however unlikely that these networks can be deemed substitute service in the near future.

4.1.1.3 Characteristics of wholesale market for central access (Market 3b)

280. There is discussion on the wholesale market for central access provided at a fixed location for mass-produced products (Market 3b) in Section 4.2.2.2 in the above specified explanatory notes to the Commission recommendation on the relevant markets. It is stated there that central access is provided far from the end user, i.e., central in a comprehensive electronic communications network and that it is possible to use this to provide adequate standardised retail service to households and companies. It is considered likely that there is a chain of substitution between solutions based on xDSL and copper on the one hand and fibre-optic solutions on the other for the coming years.

281. When virtual network solutions are used at a number of locations in the value chain, certain key characteristics of the connections need to be examined in order to distinguish between local access, central access and high-quality connections. Access (even point-to-point access) that does not offer guaranteed service quality, has a high splitting proportion, does not offer symmetric speed and only enables purchasers to offer standardised retail service or service which supports limited functionality, or has limited possibilities for differentiating between services because of limited possibilities to control the network, should be included under central access (Market 3b). Virtual solutions that have higher quality and that can be used to provide retail services to companies can also be categorised under central access, as long as they are high quality connections.

282. It is stated that NRAs need to examine competitive pressure and substitutability of other kinds of networks such as cable systems and mobile networks. It is not necessary to deal with further deliberations on cable systems as they are very rare in this country, only part of one of the country's municipalities, i.e., in Reykjanesbær. The Commission then does not expect that mobile networks will have an impact on delineation of the relevant markets for the time being.

283. Local access and central access, as they are described in the explanatory notes can be underlying wholesale service for Internet service. To some extent, substitutability could be a possibility in this connection. Some important factors are however different from each other in this service type and for this reason it is likely that companies that purchase access do not see them as full substitute products. Capability to invest and electronic communications companies' business models can among other things, decide which service they choose. Service options constitute varying investment risk, as the party who purchases local access needs to invest much more in his own networks and equipment than the party who purchases central access. Then there is the fact that local access provides much wider possibilities for forming the retail service, thus creating a special position on the retail market. The PTA therefore considers it appropriate to distinguish between Markets 3a and 3b in the same manner as is done in the recommendation.

4.1.2 Boundary between the wholesale market for access provided at a fixed location, wholesale market for central access and wholesale market for high-quality access

284. In prior PTA analysis of the markets that were then Markets 4, 5 and 6, it was considered that terminating segments of leased lines were separate from markets for access to access networks provided at a fixed location and broadband (bitstream) access. Corresponding markets are according to the ESA recommendation from 2016 now in force for Markets 3a and 3b and Market 4 for access with connection provided at a fixed location of very high quality.

285. In coverage of retail markets in the explanatory notes to the recommendations³⁷ there is discussion on standard Internet connections on the one hand and high-quality connections on the other. High quality connections belong to a separate market. In the discussion on retail markets here above, the PTA comes to the same conclusion in Section 3.2. 3.

286. Retail service on the market for high-quality connections has special characteristics that distinguish it from standardised Internet access. Many companies have needs beyond that which is customary in standardised Internet connections. Aspects that characterise such services are high quality level, high uptime, symmetric and high upload and download speeds,

³⁷ page 36.

guaranteed bandwidth, access to a dedicated call desk, short repair time and various additional services such as IP telephone, VLAN, data hosting and backup. Standardised solutions for households are not designed to fulfil these needs.

287. Because of the nature of retail service, wholesale resources belonging to Markets 3a and 3b are not sufficient for high-quality connections to provide such service. Leased lines are used in high quality connections, with guaranteed performance in both directions. They could be SDH/PDH or TDM connections which are normally point-to-point or Ethernet connections, which can variously be point-to-point or point to multipoint.

4.2 Assessment of various access technology for the wholesale market for local access (Market 3a)

4.2.1 General

288. An assessment must be made of whether local access, as it is delineated in the explanatory notes to the recommendation, can be provided on various types of networks that are operated in this country. The types of networks that could be included in this connection are copper networks, fibre-optic networks, cable systems for TV, fixed Wi-Fi networks and mobile networks.

4.2.2 Copper networks

289. Initially, local access was provided to users through a physical connection on a copper network from the telephone exchange to the user. Obligations that have applied on the market that was initially defined as the local loop market and then subsequently as the market for wholesale access to access networks provided at a fixed location, led to demand for access to the Mila copper local loops. Access is either fully unbundled loop or a shared loop to either of the local loop frequency ranges. Access is provided at a telephone exchange where the local loop is in the custody of the lessee and under his control, which enables him to decide which type of service he provides through the local loop and the speed and quality. The PTA considers that access to a copper local loop in accordance with obligations in force, belongs to Market 3a as such an access fits the criteria that are considered to delineate the market according to the recommendation.

290. According to the explanatory notes to the recommendation, a virtual connection also belongs to the market if it fulfils the criteria for local access, freedom of choice of service, guaranteed carrying capacity and full control by the lessee. In the PTA Decision no. 21/2014 where an obligation to provide access was imposed on Mila, it is prescribed that where it is problematic to provide access to street cabinets to more than one VDSL operator, then this shall be resolved with virtual unbundled local access (VULA). VULA needs to fulfil conditions related to service and access and they are: Access at each location, access independent of service provided on the line, specific and fixed definition of line capacity, full control of access and service/service definitions and full control of customer premises equipment where shared access is not technically possible, and exemption is granted where open virtual access to sub-loops is offered. In the Decision no. 21/2014, VULA was deemed to belong to Market 5, but in the light of changed definitions in the ESA recommendations, the PTA considers that this

service can belong to Market 3a, if it fulfils the current definition criteria on freedom of choice of service, guaranteed carrying capacity and control by the lessee. With this in mind, the PTA considers that both physical and virtual access in a copper network that fulfil the same criteria are part of Market 3a.

4.2.3 Fibre-optic networks

291. Subsequent to the last PTA market analysis, an obligation for access to local loops in the Mila fibre-optic network was imposed. Mila offers GPON service through its own fibre-optic in the Capital City Area and also widely across the country. Mila also offers GPON service through fibre-optic systems, owned by parties other than Mila, but not through the country's largest fibre-optic network, which is owned by GR. Neither shared access to the Mila fibre-optic local loop, nor access to part of the local loop is yet an attractive option because of the Mila network topology. The PTA considers that access to local loops in a network with PON topology is within the definition of Market 3a as it is described in the recommendation. On the other hand, such access has not been considered an attractive option and access to local loops in a Mila PON network is in reality only purchased as part of Mila bitstream service. Local loop lease in point-to-point fibre-optic networks is admittedly part of Mila's general product offer in local loop lease, but such access is very rarely purchased. Companies have been able to order a whole interrupted fibre from the distribution frame (P2P topology) under the trade name Ljóslína (Fibre line), but the PTA considers that access to such lines does not belong to Market 3a. Mila's Ljóslína is not normally deployed in the same investment projects as the public local loop network, which are deployed in the comprehensive network in Mila's fibre-optic rollout. Ljóslína are still dependent on a special order and as appropriate, only deployed against a share of start-up costs. Ljóslína are intended to provide high-speed connections to companies and not for mass-market service.

292. Mila has or operates a number of smaller networks in the countryside that are based on P2P topology. In those networks it is possible without great difficulty to provide access to local loops from technical space to households. Such access is covered by the definition of Market 3a where it is offered. Virtual network solutions that may be offered, also belong to the market if they fulfil the definition criteria as prescribed in the explanatory notes to the recommendation.

293. GR operates point-to-point fibre-optic network and the company's wholesale service mainly constitutes bitstream access on this network. GR bitstream connections are not part of Market 3a. GR does not generally offer direct access to its passive fibre-optic local loops and is therefore not selling a service on Market 3a, but the underlying fibre-optic local loops are nevertheless considered to be part of the market as internal sales.

294. Tengir provides both active and passive access to its fibre-optic network. These external and internal sales of passive access are part of Market 3a. Snerpa has deployed more than a thousand local loops in the West Fjords and uses them to provide its own retail service and bitstream service in wholesale. Up to this point in time, Snerpa has not sold access to local loops without bitstream, but Snerpa local loops are nevertheless part of Market 3a as internal sales. The same can be said about the Austurljós fibre-optic network at Egilsstaðir, which has 200-300 fibre-optic local loops. Smaller networks, such as those in municipalities that were developed with the help of the Telecommunications Fund, generally, provide passive access which is part of Market 3a.

4.2.4 Cable systems for TV

295. In the above specified explanatory notes to the EU recommendation, it is considered unlikely that TV distribution systems can be a substitute product for local loop leasing copper and fibre-optic networks in the relevant wholesale market. As has been stated previously, there is only one local cable system for TV is operated in this country i.e., the cable system of Kapalvæðing in Reykjanesbær. The cable system reaches [...] addresses of which [...] are active connections. This therefore has such a small impact on the relevant market in this country that there is no reason to discuss it specifically in analysis of the market. In addition to this, it should be noted that there is no wholesaler on this network and in most places, it is not considered economically or technically attractive to set up physical or virtual wholesale access to such networks. Kapalvæðing has made an agreement with GR on bitstream access to that company's fibre-optic network. The PTA therefore considers TV cable systems not a part of Market 3a in this country.

4.2.5 Wireless networks

296. It was stated in the discussion on the retail market for Internet connections that users of fixed Wi-Fi connections in this country are very few and decreasing in number. The PTA therefore considers it unlikely that fixed wireless access belongs to the same market as fixed line connections, and in any event, they are so small in number that they have no significance in connection with analysis of the market being examined here.

297. With respect to mobile networks, the PTA came to the conclusion in its discussion on the retail market that consumers generally saw data transfer through mobile networks as an additional service and not as a substitute service for fixed line connections and for this reason, they do not belong to the same retail market. This means that connections to mobile networks in wholesale cannot be deemed a substitute product for fixed line connections.

298. Apart from limitations to substitutability at retail level, one is also obliged to take into account the fact that all wholesale service such as local loop lease is difficult to implement in mobile networks, and in fixed wireless networks, given the limitations generally in place today, as this would require dividing the frequency range in question and would result in impairment of transmission capacity.

299. The PTA considers therefore that wireless networks do not belong to Market 3a.

4.2.6 Self-supply

300. In analyses of Markets 4 and 5 according to the former ESA recommendation from 2008, the PTA considered internal sales of companies and company groups to be a part of the market and their market share was assessed on that basis. The PTA considers that underlying wholesale operations of vertically integrated companies, provide competitive pressure against other comparable wholesale services and for this reason it is appropriate to include them and to take them into account when assessing competition on the market, if the wholesale operations in question fulfil the criteria described here with respect to delineation of the relevant markets.

301. Internal sales of local access within the same company are worthy of particular scrutiny as companies use their local networks as procurements in central access. In the vast majority

of cases, retail takes place in the name of companies other than those that operate the core network, but it is however the case within the same company group, i.e., Mila and Siminn.

4.2.7 Conclusion regarding definition of Market 3a

302. With the above in mind, the PTA considers that cable TV systems and wireless networks do not belong to the wholesale Market 3a for local access with a fixed line connection. The market therefore comprises access to physical connections to access networks in copper and fibre-optic networks, along with the corresponding virtual net solutions that fulfil the criteria described in the guidelines on the relevant market, i.e., 1) that access is local and not central; 2) that the lessee can choose the service he provides and has guaranteed carrying capacity and; 3) that the lessee has full control of the connection.

303. The PTA considers that all connections to fibre-optic and copper networks that fulfil the above specified criteria belong to the same wholesale market and that there is no reason to delineate sub-national markets by varying technical solutions. As was stated in the discussion on the retail market, the PTA considers that there is a chain of substitution between differing solutions in copper and fibre and with this in mind one must also conclude that there is a chain of substitution in wholesale. It should be noted that more than 90% of bitstream connections on the Mila copper network, are in the form of VDSL and that the proportion of ADSL connections of total bitstream connections in this country is now below 3%. Internal sales of companies and company groups are part of the market.

304. The PTA considers that Market 3a should be deemed local loop lease on copper local loops, both full access and shared, and local loop lease on fibre-optic local loops, regardless of whether the topology is PON or P2P, along with corresponding virtual network solutions that fulfil the conditions specified above.

4.2.8 Local access on offer in this country

4.2.8.1 Mila

305. Mila offers access to local loops, both on copper and fibre-optic. Copper local loops are the company's most widespread system at a national level, and most homes and companies in the country have the option of copper connection, that is to say 140,496 or about 86% of the 163,209 homes and companies that were in the country at the end of 2020. For many years, Mila has only connected fibre-optic local loops in new buildings which means that the proportion of copper connections has gradually fallen. Copper local loops in use have decreased steadily but surely in recent years. They were 114,000 at end at year end 2016 and were 58,000 at the end of 2020. At the same time, fibre-optic connections have increased. Fibre-optic local loops in use were about 35,000 at the end of year 2016 and were about 101,000 at the end of year 2020. The proportion of copper local loops in use was therefore about 36% while fibre-optic local loops were about 64% at end of year 2020.

306. Basic access to the copper local loop is access to the local loop, along with access to the lower part of the frequency range. Shared access to the copper local loop is access that is limited to the upper part of the frequency range. Full access to the copper local loop is access to both the upper and lower part of the frequency range. A copper line connects the distribution frame

or corresponding facility in Mila's access network to a demarcation box at the buyer's premises. The sub loop is that part of the local loop that runs from the distribution frame to the demarcation box. The demarcation box is the network connection point to the end user.

307. According to information from Siminn, there are plans with Siminn to close the PSTN voice telephony system and for some time now it has been clear that fibre-optic connections and possibly mobile network solutions will in some instances replace copper connections. In the light of widespread development of fibre-optic access networks, of the expected 5G networks and of the decommissioning of the public voice telephony system (PSTN), Mila plans to stop operating the company's copper access networks during the next 10 years, from the time that the company announced this in the autumn of 2020. According to Mila, this was a development that had already commenced. It is already the case that the copper network from various smaller telephone exchanges in the countryside is no longer in use as households are only using fibre-optic or mobile network solutions. In consultation with the PTA and with electronic communications companies, Mila would stop using access networks that used copper local loops. The Mila plans were divided into three phases:

- 0-5 years - Locations where fibre-optic rollout has started, is well under way or completed. This applies to the whole of the countryside (Iceland Optical Connected project), to the Capital City Area and to urban areas for the above description applies.
- 5-7 years - Locations where fibre-optic rollout has started and where clear plans are in place. This applies to many urban areas outside the Capital City Area.
- 7-10 years - Urban areas where fibre-optic rollout is very limited, new buildings connected to fibre-optic, but no clear plan yet elaborated.

308. This phasing of the task was presented with reservations and would take into account progress in fibre-optic and 5G rollout in this country.

309. In the opinion of the PTA, the impact of the Mila plans described above would have a rather small effect on this development for the lifetime of this analysis, though it is clear that the share of copper networks will continue to diminish with the increasing share of fibre-optic. These plans will for example not affect the conclusion that there would still be substitutability between copper networks and fibre-optic networks on the relevant market for the lifetime of this analysis.

310. Mila also offers access to fibre-optic local loops which are often rolled out with PON topology. With this topology, one optical fibre is shared to the optical splitter and from there fibres go to up to 128 customers. With active equipment with GPON technology, it is possible to provide very substantial data speed with great economy. PON architecture can be particularly suitable for electronic communications companies that already have network topology based on copper technology, as traditional conduits for a copper network from the distribution frame to street cabinets and from there to households or companies, can be used for such fibre-optic cables. In this connection one can mention that Mila has for some time now laid fibre-optic to street cabinets, in the first instance for broadband rollout in the years before the turn-of-the-century and in recent years for its VDSL rollout. There is no active equipment on the route from the distribution frame to the end user as the optical splitter is passive equipment that neither requires electricity nor other intervention. Mila offers GPON service through its own fibre-optic in the Capital City Area and also widely across the country. Mila

also offers GPON service through fibre-optic systems owned by parties other than Mila, but not through the GR fibre-optic network, except through a very small number of GR connections in parts of Árborg and Borgarbyggð. As has previously been stated, there are certain limitations for other electronic communications companies to using local loop lease on a fibre-optic network with PON topology, among other things because of lack of space for equipment and because of the start-up costs. Fibre-optic local loops on a PON network are therefore today only leased as part of the GPON bitstream service provided by Mila.

311. Mila Ljósína lines (Fibre line) on the corporate market, which are specially ordered P2P local loops constituting whole uninterrupted fibre-optic threads from the distribution frame to the place of use, do not belong to Market 3a as discussed here above. P2P Ljósína lines on countryside networks operated by Mila, can on the other hand be deemed to be part of Market 3a, as such local loops are deployed in a comprehensive project for development of an access network.

312. According to the universal services obligation which rests on Mila, the country is divided into three service areas on the basis of the location of operating premises of Mila or its partners:

- a. Region 1 covers urban areas where Mila or its partners have operating premises.
- b. Region 2 covers areas within a 10 km radius outside urban areas where Mila or its partners have operating premises.
- c. Region 3 covers areas outside a 10 km radius from urban areas where Mila or its partners have operating premises.

313. As previously stated, it was prescribed in the PTA Decision no. 21/2014 that because it was problematic to provide access to street cabinets to more than one VDSL operator, then this should be resolved with virtual unbundled local access (VULA). It is possible to get local access to VULA in copper or through Mila GPON network. The following items appear in the Mila description of the service in Appendix 6 to the reference offer for bitstream connections:

“Mila VULA service is delivered with varying speeds and characteristics related to the product type. The service purchaser is responsible for shaping the traffic in the speed required by the end user. Actions related to the service purchaser’s VULA access shall, all things being equal, be possible to perform in the Mila service web/communications gateway. The product gives the customer access to data transfer capacity to and from the end user within the Mila access network. Mila VULA service gives purchasers a certain latitude as to how they configure GPON/VDSL2 service for their end users. In this way it is possible for service purchasers to differentiate themselves from other electronic communications companies.”

314. On the basis of these service characteristics as described in the Appendix to the Mila reference offer, the PTA considers the service to belong to Market 3a. There has however been almost negligible demand for the Mila VULA solution, and it seems that purchasers at wholesale level rather choose Access Option 1 in bitstream.

4.2.8.2 GR

315. GR operates a fibre-optic network in the Capital City Area and in part of West and South Iceland. The company offers active access to its network, which can be connected to at two

connection points in Reykjavik. 1 Gb/s connections are on offer to end users. This constitutes a standardised access product as access is provided centrally and the purchasers have limited possibilities to control the network. This access product is therefore central access which belongs to Market 3b.

316. GR does not offer access to passive local loops on the household market. Local loops owned by the company are nevertheless an underlying part of the company's service on Market 3b which means that the company is operating on Market 3a with respect to service provided to its own operations in the form of inner sales, but the company does not conduct external selling on that market.

4.2.8.3 Tengir

317. Tengir owns and operates a fibre-optic network in all municipalities in Northeast Iceland, apart from Svalbarðshreppur and Tjörneshreppur, but does however manage the operation of the fibre-optic network in Tjörneshreppur. Tengir also manages the operation of the fibre-optic network in Fljótsdalshreppur in East Iceland. In 2020, the fibre-optic network in Húnaþing vestra was added in the West part of North Iceland.

318. The main Tengir product is active connections, but Tengir also provides access to dark fibre from optical distribution frames to a user's house. The latter access product belongs to Market 3a, but fibre-optic local loops are also an underlying component in the offer of active connections and are therefore considered to be internal sales in Market 3a.

4.2.8.4 Snerpa

319. Snerpa has deployed more than a thousand local loops in the West Fjords and uses them to provide its own retail service and bitstream service in wholesale. Up to this point in time, Snerpa has not sold access to local loops without bitstream, first and foremost because of a lack of interest from potential parties requesting access, but Snerpa local loops are nevertheless part of Market 3a as internal sales.

4.2.8.5 Other networks

320. A number of small fibre-optic networks have been built in sparsely populated areas with the support of the Telecommunications Fund under Iceland Optical Connected project. These networks normally only offer passive access to fibre-optic local loops and are therefore mainly on Market 3a. Mila has access to almost all of these local networks, and has been purchasing many of them, assuring long-term control over them or deploying them with state aid.

4.3 Assessment of various access technology for the wholesale market for central access (Market 3b)

321. An assessment must be made of whether central access, as it is delineated in the above specified explanatory notes to the recommendation, can be provided on various types of networks that are operated in this country. The types of networks that could be included in this

connection are copper networks, fibre-optic networks, cable systems for TV, fixed Wi-Fi networks and mobile networks. In the explanatory notes to the Commission recommendation, it is stated that there is substitutability between bitstream on copper and fibre-optic which means that both services should be part of the market.³⁸

4.3.1 Copper and fibre-optic networks

322. Access services on Market 3b constitute virtual connections. Virtual connections can belong to Market 3a if they fulfil the criteria prescribed in the explanatory notes to the recommendation on local access, i.e., freedom to choose the service type provided on the connection; guaranteed carrying capacity and control by the wholesale purchaser of the connection. Wholesale services on Market 3b do not need to fulfil these criteria and access to them is usually provided more centrally than on Market 3a, i.e., in a switching station that serves a large part of the area or the whole country. Bitstream is not normally covered by this definition.

323. The PTA considers that virtual solutions such as bitstream and virtual solutions offered in copper or fibre-optic networks that do not fulfil the necessary criteria to belong to Market 3a and are used to provide mass-market bitstream service, belong to Market 3b. These are all bitstream solutions, except those used for the VULA solutions.

4.3.2 Cable systems for TV

324. It is technically possible to implement bitstream wholesale access to cable systems for TV, and such networks are considered to be part of Market 3b in some EEA states. The PTA tends towards the opinion that in this country it is not possible to consider cable systems to be part of the market. Only one local cable system for TV is operated in this country i.e., the cable system of Kapalvæðing in part of Reykjanesbær. The system has very limited distribution, in fact only within one municipality to just under 4,000 homes. Kapalvæðing active connections on the cable system in question are only [...] which means that the usage proportion is therefore less than [...] % and the company therefore has a negligible share at national level. It therefore has such a small impact on the broadband market in this country that there is no reason to discuss it specifically in analysis of the market. In addition to this, it should be noted that there is no wholesaler operating on this network and there has been no discernible demand for such access. It is unlikely that retailers will seek wholesale access to such a small network which is in many respects different from the networks to which the service providers are accustomed. Kapalvæðing has made an agreement with GR on bitstream access to the GR fibre-optic network and will therefore provide retail service over the whole of GR operating territory. Mila operates a VDSL system there, and in addition to this both Mila and GR have commenced fibre-optic deployment there which is likely to be completed in 2022.

325. The PTA therefore considers TV cable systems not a part of Market 3b in this country.

³⁸ See page 46.

4.3.3 Wireless networks

326. It was stated in the discussion here above on the retail market for Internet connections that users of fixed Wi-Fi connections in this country were very few and were decreasing in number. Despite the fact that it could be technically possible to provide central access to Wi-Fi networks at a fixed location, the PTA considers it unlikely that fixed Wi-Fi network access belongs to the same market as fixed line connections. The frequency licences of the networks that provide wireless access also expire later in 2021, and the intention is that the frequencies will from that time on be used for mobile network service, including 5G. Wholesale access is not on offer to such networks in this country and hardly any demand for such access has been seen. In all events, the number of users is so negligible that the networks will possibly cease operations during the lifetime of this analysis, and such connections have no significance in connection with analysis of the market here being examined.

327. With respect to mobile networks, the PTA came to the conclusion in its discussion on the retail market that consumers generally saw data transfer through mobile networks as an additional service and not as a substitute service for fixed line connections and for this reason, they do not belong to the same retail market. This means that connections to mobile networks in wholesale cannot be deemed a substitute product for wholesale bitstream over fixed line connections.

328. The PTA considers therefore that wireless networks do not belong to Market 3b.

4.3.4 Self-supply

329. In the same way as with respect to local access, the PTA considers that underlying central access of vertically integrated companies provides competitive pressure against other comparable wholesale services and for this reason it is appropriate to include them and to take them into account when assessing competition on the market, if the wholesale operations in question fulfilled the criteria described here with respect to delineation of the relevant markets.

330. In most instances in this country, retail takes place in another company than wholesale which means that it is easy to identify the boundary between wholesale and retail. There are however cases of companies, like Vodafone, who operate their own central access and use it as a component in its retail service, but Vodafone has now mostly withdrawn from Market 3b and the share of that company is negligible today. The Siminn Group is however a vertically integrated company in this connection, as Mila operates service on Market 3a and Market 3b and Siminn operates mostly at retail level.

4.3.5 Conclusion regarding definition of Market 3b

331. With the above in mind, the PTA considers that a cable TV systems and wireless networks do not belong to the wholesale Market 3b for central access. The market is thus comprised of virtual solutions that are offered centrally in copper or fibre-optic networks, that do not fulfil the necessary criteria to belong to Market 3a and are used to provide central mass-market bitstream service. The PTA considers that all connections to fibre-optic and copper networks that fulfil the above specified criteria belong to the relevant wholesale market and

that there is no reason to segment sub-national markets by varying technical solutions. As was stated in the discussion on the retail market, the PTA considers that there is a chain of substitution between differing solutions in copper and fibre and with this in mind one must also conclude that there is a chain of substitution in wholesale in the relevant market. Internal sales of companies and company groups in the relevant market are part of the market.

4.3.6 Central access on offer in this country

4.3.6.1 Mila

332. Mila offers three kinds of central access with fixed line connections for mass-produced products (bitstream access). In ADSL systems, 12 Mb/s is the maximum bandwidth on offer, in VDSL systems it is 50 Mb/s or 100 Mb/s if vectoring is applied to the line and 100, 500 and 1000 Mb/s (1 Gb/s) for GPON in the bitstream system.

333. Access Option 1 is the option most often used by Mila's customers. Access Option 1 in copper networks is delivered through DSLAM or equivalent equipment at the place where the copper local loops connect to the telephone exchange distribution frame or street cabinet. A service provider connects to Mila DSLAM/wholesale switch directly into the technical space in question with a 1 Gb/s or 10 Gb/s connection. The service provider himself must provide an access server (BRAS) and a transmission layer to the DSLAM/wholesale switch. In the case of Access Option 1 for GPON, access is provided in DSLAM/OLT equipment in the Mila technical space. Service providers themselves are responsible for customer equipment for their own customers. This Access Option is provided locally and does not have the flexibility and control possibilities that are necessary for it to belong to Market 3a.

334. Access Option 2 is on offer at those places where the Mila's core network offers MPLS-TP connections, but Mila wholesale customers have, to date, only availed themselves of this Access Option to a limited degree.

335. Access Option 3 constitutes transfer on Mila's trunk line network to a connection point of another electronic communications company to an access server (BRAS). Connections are provided with the data transfer speed that is technically possible at any given time. The service provider connects to an IP/MPLS network and from there receives access to a transmission layer and access server. Service providers themselves are responsible for customer equipment for their own customers. Síminn was previously responsible for the IP/MPLS part of transit in Access Option 3, but after Mila took over the IP-MPLS system at the beginning of 2021, Mila is responsible for the transit in question.

336. Access Options 1, 2 and 3 are connections in an access network for Mila bitstream service for central access provided at a fixed location for mass-market products through the company's copper (xDSL)- and fibre-optic networks. Access Option 2 is on offer where MPLS-TP connections are in situ. With the above specified Access Options through ADSL and VDSL solutions on Mila copper networks and GPON solutions in fibre-optic networks there are generally three virtual networks on offer to households. One virtual network for each service; general Internet service, IPTV distribution system and voice telephony with IP transmission (VoIP).

337. Mila also offers bitstream solutions for the corporate market³⁹. The solutions are on offer for ADSL, G.SHDSL, VDSL and GPON bitstream systems where the setting up of three virtual networks is also on offer; for general Internet service, VoIP voice telephony and for interconnection between branches or operational locations. There is also a fourth virtual network on offer for GPON corporate connections, but though not through Access Option 3, and that virtual network is intended for control and monitoring of user equipment. It is possible to receive transmission on virtual network for TV through a GPON connection, if it is available from the connection point in question. Bitstream service that constitutes or is the underlying layer for high quality service for companies, is not included in Market 3b but rather in Market 4.

338. As stated in section 4.2.8.1 here above, Mila intends to decommission its copper network in a number of phases during the next 10 years subsequent to the country's fibre-optic rollout. Access to bitstream service through xDSL technology over copper lines will therefore be decommissioned at the same time. In the opinion of the PTA, the impact of the Mila plans described above would have a rather small effect on this development for the lifetime of this analysis, though it is clear that the share of copper networks will continue to diminish with the increasing share of fibre-optic. These plans will for example not affect the conclusion that there would still be substitutability between copper networks and fibre-optic networks on the relevant market for the lifetime of this analysis.

4.3.6.2 GR

339. GR operates a fibre-optic network in the Capital City Area and in part of West and South Iceland. The company offers central access with a fixed line connection for mass-market products which can be connected to at two connection points in Reykjavik. 1 Gb/s connections are on offer to end users. This constitutes a standardised access product as access is provided centrally and the purchasers have limited possibilities to control the network. This access product is therefore central access which belongs to Market 3b.

4.3.6.3 Tengir

340. Tengir owns and operates a fibre-optic network in all municipalities in Northeast Iceland, apart from Svalbarðshreppur and Tjörneshreppur, but does however manage the operation of the fibre-optic network in Tjörneshreppur. Tengir also manages the operation of the fibre-optic network in Fljótsdalshreppur in East Iceland. In 2020, the fibre-optic network in Húnaþing vestra was included.

341. Tengir offers active central access which belongs to the Market 3b and Mila purchases access to the Tengir fibre-optic network on Market 3a and provides bitstream service through that network and is in fact a larger operator than Tengir itself in the area in question and also when one only takes into account bitstream service over the Tengir fibre-optic network.

³⁹ See Mila tariff and technical conditions for bitstream access, Appendices 1, 2 and 3 to the reference offer on bitstream from 1.6.2019.

4.3.6.4 Other networks

342. A number of small fibre-optic networks have been built with state support in sparsely populated areas with the support of the Telecommunications Fund under Iceland Optical Connected project. These fibre-optic local loops will be just over 6,000 in number when the project is completed in 2022 or 2023. These networks normally only offer passive access to fibre-optic local loops and are therefore mainly on Market 3a.

343. Mila and Tengir have however deployed some of these networks with state aid, purchased some of these networks and leased access to other such networks in order to install active equipment and offer central access that belongs to Market 3b.

5 General on analysis of geographic markets

5.1 General

344. When the relevant product and service market has been analysed, the next step is to analyse the scope of the geographic market. It is not before the geographic delineation of the relevant product and service market has taken place that the electronic communications authority in question can adequately analyse competitive conditions on the relevant market with a view to designating a specific electronic communications undertaking or undertakings as having significant market power and imposing on that or those undertakings the appropriate obligations if the analysis of competitive conditions reveals that effective competition is not present on the relevant market or part of that market.

345. Where competitive conditions vary significantly, this can impact the designation of parties with significant market power and the possible imposition of obligations. This however does not need to be the case as the same electronic communications undertaking could have significant market power, regardless of whether the country is one market or delineated into smaller geographic markets. Competition problems can furthermore vary between differing regions which can impact the elaboration of obligations even where the conclusion would be that there were no grounds for delineating a geographic market into more than one market.

346. According to paragraph 3 of article 15 of the EU Framework Directive, it is the remit of the regulatory authority of the relevant state to analyse the relevant geographic market in accordance with the main principles of competition law, as they have most knowledge and experience of circumstances in their states in this connection. This provision has been adopted in Icelandic law with article 16 of the Electronic Communications Act no. 81/2003 where it states that the PTA shall define service or product markets and geographic markets in accordance with the main principles of competition law and according to obligations pursuant to the EEA agreement. The EU Commission, and the EFTA Surveillance Authority (ESA) for EFTA states, then scrutinises the analysis in question, and assesses whether it complies with the requirements set by European competition and telecom legislation.

347. When defining geographic markets and/or imposing varying obligations by geographic area, the PTA is obliged to take into account the following recommendations and guidelines of the EU Commission and ESA, of the common positions of BEREC and other reports of that institution and must follow them meticulously.

- ESA Guidelines on market analyses and assessment of significant market power of electronic communication undertakings (SMP guidelines), dated 14 July 2004.⁴⁰

⁴⁰ The Guidelines took into account analogous Guidelines from the EU Commission from 2002. The EU Commission has now revised its Guidelines on market analysis and assessment of significant market power, see *Commission guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and service* from 26 April 2018 (2018/C 159/01). See also Commission staff working document which has further coverage on geographical definition of markets, see “*Commission staff working document, C(2018) 2374 final.*” These Guidelines have not been formally adopted by ESA, but the PTA will take them into account in the market analyses here under discussion. According to PTA’s information, ESA is working on the elaboration of analogous Guidelines to those set by the EU Commission in 2018.

- ESA Recommendation on the relevant markets susceptible to *ex ante* regulation, dated 11 May 2016.⁴¹
- The BEREC Common Position on geographic aspects of market analysis (geographic definition of markets and obligations), dated 5 June 2014.⁴²
- The BEREC Report on experience of the BEREC Common Position on geographic aspects of market analysis (geographic definition of markets and obligations), dated 6 December 2018.⁴³
- Recommendation of the EU Commission on regulated access to Next Generation access networks, dated 20 September 2010.⁴⁴
- Recommendation of EU Commission on consistent non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment, dated 20 September 2013.⁴⁵
- The BEREC Report on co-location and significant market power in the environment of next generation electronic communications networks, dated April 2012.⁴⁶

348. The geographic market can be limited to regions, can cover the whole country or cover two or more countries.⁴⁷

349. In accordance with the practice in force in European competition law, a geographic market covers a geographic area where stakeholder companies participate in supply and/or demand of the relevant goods or services where conditions for competition are the same or sufficiently homogeneous and where it is possible to demarcate the geographic area from neighbouring area where conditions for competition are significantly different.⁴⁸ In accordance with the above specified Guidelines from ESA on market analysis and assessment of significant market power of electronic communications undertakings from 2004, which is still fully in force, one must define the market as that geographic area where the product in question is offered to customers with similar and sufficiently homogeneous competitive conditions. When markets are defined geographically it is thus not necessary for the competitive conditions of electronic communications undertakings to be *exactly* the same. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are

⁴¹ ESA Recommendation of 11 May 2016 on relevant product and service markets susceptible to *ex ante* regulation, 093/16/COL.

⁴² BEREC Common Position on geographic aspects of market analysis (definition and remedies), BoR (14) 73.

⁴³ BEREC Report on the application of the Common Position on geographic aspects of market analysis, BoR (18) 213.

⁴⁴ EU Commission recommendations on regulated access to Next Generation Access Networks (NGA), from 20 September 2010.

⁴⁵ EU Commission recommendations on consistent non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment, dated 11 September 2013.

⁴⁶ BEREC Report on Co-investment and SMP in NGA networks, from April 2012.

⁴⁷ See paragraph 61 in the ESA Guidelines.

⁴⁸ See e.g., paragraph 57 in the above specified ESA Guidelines and *United Brands*, op.cit., paragraph 44, *Michelin*, op.cit., paragraph 26, Case 247/86 *Alsattel v Novasam* [...] ECR 5987, paragraph 15; *Tiercé Ladbroke v Commission*, op.cit., paragraph 102.

appreciably different that cannot be considered to jointly constitute the same geographic market.⁴⁹

350. It was long customary to demarcate geographic electronic communications markets with reference to the distribution of the relevant electronic communications networks and to the jurisdiction of the legal framework that applies to the relevant market.⁵⁰ The scope of validity of interconnection agreements can furthermore be of importance in this connection.⁵¹ This methodology was appropriate when the traditional copper networks were the standard but has been less appropriate in the latter years after NGA networks, including cable systems and fibre-optic, were increasingly developed as an option to the previously mentioned electronic communications networks. The design of such networks normally varies from the traditional copper networks, which can significantly complicate the process of definition of geographic markets.

351. The process of definition of geographic market is according to the Guidelines, the same as that which applies to the definition of product and service markets, among other things with respect to evaluation of demand and supply substitutability in cases of relatively small price rises, i.e. about 5-10% (the hypothetical monopolist test - SSNIP test).⁵² The third element that could be used in this context would be evaluation of potential competition.⁵³ It was stated that the question of whether supply of a specific service in a specific area belongs to the relevant market or not, revolved round the existence of competitive pressure on parties to the market, in connection with their pricing. It was necessary to examine this on the basis of the elements specified above, particularly demand-side and supply-side substitutability.

352. In assessing demand-side substitutability, it is appropriate to consider customers' tastes and geographic purchasing patterns. In some European states, language problems can among other things, explain why certain electronic communications service is not offered in varying language communities within the same state. With respect to supply-side substitutability, one can say that where it is possible to demonstrate that an electronic communication undertaking which is not operating on the relevant market would launch an entry into the relevant market

⁴⁹ See e.g., paragraph 57 in the above specified ESA Guidelines and *Deutsche Bahn v Commission*, op. cit., paragraph 92. Case T-139/98 *AAMS v Commission*, [...] ECR 2001-II, paragraph 39.

⁵⁰ See e.g., paragraph 60 in the above specified ESA Guidelines, Case No IV/M.1025 – *Mannesmann/Olivetti/Infostrada*, paragraph 17, and Case No COMP/JV.23 – *Telefónica Portugal Telecom/Médi Telecom*. In footnote 44 in the above specified ESA Guidelines, the following is stated: “In practice, this area will correspond to the limits of the area in which an operator is authorised to operate. In Case No COMP/M.1650 – *ACEA/Telefónica*, the Commission pointed out that since the notified joint venture would have a licence limited to the area of Rome, the geographic market could be defined as local; at paragraph 16.” Then it is stated in footnote 45: “The fact that mobile operators can provide services only in the areas where they have been authorised to and the fact that a network topology reflects the geographic dimension of the mobile licenses explains why mobile markets are considered to be national in scope.”

⁵¹ See e.g., Case No IV/M.570 – *TBT/BT/TeleDanmark/Telenor*, paragraph 35.

⁵² See paragraph 58 in the above specified ESA Guidelines.

⁵³ The difference between supply-side substitutability and potential competition manifests itself in a quick reaction in supply-side substitutability to the price rises in question, while potential new entrants could need a longer period of time to offer a product nationwide or in a specific region. Potential competition also results in sunk cost whereas supply-side substitutability results in additional cost. There are many mentions of potential competition in the section on assessment of significant market power and designation of parties with significant market power rather than this being the case in the sections on definition of product and service markets and/or definition of geographic markets.

at short notice if prices were to increase somewhat (5-10%) then the market analysis should be broadened to encompass such a company.⁵⁴

353. As stated here above, the above specified ESA Guidelines from 2004 generally assumed that SSNIP test that can be used to assess demand or supply substitutability is the point of departure for geographic definition of markets pursuant to the Guidelines. It was stated there that this methodology could lead to a very large number of small geographic markets, which would not be desirable, with respect to achieving the objectives of market analysis, that is to say to impose appropriate obligations on undertakings with significant market power for the purpose of strengthening effective competition, for the benefit of consumers. For example, a 5-10% increase in price for broadband access in one area would in all likelihood not lead to inhabitants moving home to another area and nor would this on its own encourage other electronic communications undertakings to extend their networks to the area in question.

354. It was also stated that the hypothetical monopolist test was only one method of several for defining service markets or geographic markets.⁵⁵ The test in question would, e.g., only be realistic under those circumstances where there was free pricing and would be much less applicable in those instances where prices were subject to obligations. One could say the same about those instances where consumer choice is rather determined by factors other than price. To reach an adequate conclusion it could therefore be useful to aggregate areas where comparable competitive conditions pertain, on the basis of specific objective criteria of one area, into one geographic area. If the relevant NRA should choose to use the hypothetical monopolist test, it should be, to the degree that the regulator in question could demonstrate that the price rise in question on the said product, within a given region, would not lead to consumers switching to a substitute product or to start doing business with an electronic communication undertaking in another area.⁵⁶

355. In the explanatory note to the above specified Recommendation of the EU Commission on the relevant market which is susceptible to *ex ante* regulation⁵⁷, it is among other things stated that the fact that the market territory of competitors of an operator with significant market power⁵⁸ is not the whole country does not mean on its own that the market should be segmented geographically. A closer examination should be made of demand-side and supply-side substitutability on the relevant market for it to be possible to reach that decision. Regional competitors of the operator with significant market power exert competitive pressure on him outside his regional territory in a situation where the operator with significant market power applied the same pricing across the whole country and where the competitor in question was large enough not to be ignored. To demonstrate that there were conditions to separate the market geographically there should also be clear indications that regional price differences resulted from varying competitive conditions between areas and did not only reflect a difference in the underlying cost of providing the service in the region in question.

⁵⁴ See paragraph 59 in the above specified ESA Guidelines. The new SMP Guidelines from the EU Commission from 26 April 2018 do not change this main principle.

⁵⁵ See e.g., sub-paragraph 27 in the above specified ESA Guidelines.

⁵⁶ See paragraph 44 in the above specified ESA Guidelines.

⁵⁷ See page 14 in the document in question, Commission Staff Working Document, Explanatory Note, SWD(2014) 298. The Recommendation to which the document in question related became the model for the ESA Recommendation now in force from 2016 on the same subject.

⁵⁸ The term "Operator with significant market power" is used in this Sections 5-7 to refer to former state operated monopolists (incumbents) in electronic communications in the various states.

356. It also states in the same document⁵⁹ that in those instances where the relevant NRA cannot adequately distinguish differing competitive conditions between regions, which are sufficiently stable over a period of time in order to justify segmented geographic markets, it would be possible to impose varying obligations on operator with significant market power that operate across the whole country, by area. This would then be a reaction to the existence of varying competition that the operator with significant market power would face by area, e.g., varying infrastructure competition by area, but the competitive conditions would not be sufficiently different to justify segmented geographic markets.

357. As stated above, in 2018 the EU Commission reviewed its Guidelines from 2002 on market analysis and assessment of significant market power of electronic communications undertakings (SMP Guidelines). The methodology with defining service markets and geographic markets did not change much with this review, but the Guidelines took into account the experience of the Commission and of the NRAs in implementing the main principles that had been formally decided in the year 2002. The current ESA Guidelines on this issue are also, as previously stated, based on the Commission Guidelines from 2002. ESA is now working on a review of its Guidelines which will be based on the Commission Guidelines from 2018.

358. In an accompanying document to the revised Commission Guidelines, developments during the 16 years in question are described. It is stated there that this development constituted among other things, more infrastructure competition, particularly in urban areas. Municipalities and utility providers had also deployed electronic communications networks in their territories. Network development was therefore much more varied now than before, and at different stages of development within states and from state to state. The level of competition could thus vary within a specific state. In order for investments in such networks to continue there would need to be a stable and predictable regulatory framework which among other things, should be founded on market analyses and appropriate obligations according to these analyses.

359. As will be explained here later in more detail, geographic segmentation of markets was for a long time, rather uncommon on electronic communications markets in Europe, particularly on the wholesale market for local access provided at a fixed location (Market 3a), but rather more common on the wholesale market for central access provided at a fixed location for mass-market products (Market 3b). Such segmentation has however been increasing in recent times on both markets. Where such segmentation has been made on that Market 3a, explanations have up till now in the past months in the cases of Italy and Poland, had historical roots, where the circumstances in the states in question have been such that electronic communications networks were in the past developed on a regional basis and operated by parties that do not operate outside their own region, see for example the Hull region in England, Finland and Hungary. Such circumstances have not existed in Iceland. Now Italy and Poland have recently, as stated above, joined those states that have segmented geographic markets on the market in question, even without the above specified obligations applying. Furthermore, a number of additional states have imposed varying obligations by area on the market in question even though the market had not been divided by area, such as Cyprus, Spain, Denmark and Belgium. It should be noted that the United Kingdom is no longer a part of the EU and therefore not within the EEA. One can thus say that 10 states within the EEA applied geographic measures on the relevant market (Market 3a), i.e., that have segmented the market geographically and six that applied varying obligations by area.

⁵⁹ See page 14 in the document in question.

5.2 BEREC Common Position on geographic aspects of market analysis from 2014

360. In 2008 the European Regulators' Group, ERG⁶⁰, issued a report which constituted a Common Position on various issues related to geographic definition of markets.⁶¹ There it was stated among other things that the increased distribution of new electronic communications networks and increased market share of their operators could in some locations have led to conditions for competition being different between particular regions within the same state. If there could be any doubt that the country was one geographic market, then it would be advisable to begin by making a simple preliminary examination of competitive conditions. One would then examine demand and supply substitutability between areas and the homogeneity of competitive conditions with respect to distribution of new electronic communications networks, pricing and characteristics of service. If the conclusions of the preliminary examination indicate that they are not different market areas, then there is no reason to perform a detailed analysis. The instructions in the report were considered necessary as a detailed geographic analysis of markets was generally very demanding in terms of time and staff resources for electronic communications regulatory bodies and thus not justifiable unless made necessary by specific circumstances, that is to say that there were reliable indications that it might be necessary to segment the geographic market into more than one market or impose varying obligations by area.

361. The ERG Common Position allowed for two main methods for segmenting geographic markets, i.e., on the one hand by administrative boundaries and on the other hand, according to the network topology of the operator with significant market power, having taken into account competitors' electronic communications networks.

362. In the report in question, it was furthermore prescribed that in order for it to be possible to segment differing geographic markets, certain conditions had to be fulfilled, i.e.:

- The segmented geographic areas needed to be smaller than the country as a whole and to be mutually exclusive.
- The service offers of each electronic communications company on the market in question had to be mapped.
- The boundaries of the areas should be clear and stable, such that all parties to the market could understand them.
- The geographic areas were to be sufficiently small to ensure that competitive conditions would be unlikely to change significantly within these areas and they should be sufficiently large to prevent an excessive burden on electronic communications companies from replying to queries and reacting to requests for data from electronic communications regulatory bodies and on the electronic communications authorities from analysing data received.

⁶⁰ ERG became BEREC in 2010.

⁶¹ ERG Common Position on Geographic Aspects of Market Analysis (definition and remedies) - October 2008 ERG (08) 20 final CP Geog Aspects 081016.

363. It was stated that the aspects which would mainly indicate the need for more detailed analysis were the following:

- Varying degree of access barriers between areas.
- Variation in number of electronic communication companies operating between areas.
- Market share of electronic communications companies were comparable in a specific area.
- Possible price difference by area. For example, that there was a difference in price for the service of the operator with significant market power or a difference between his prices and those of competitors between varying areas.
- Difference in service offer by area. The fact that a competitor's/competitors' supply area was not the whole country did not suffice on its own to justify segmented geographic markets.

364. In the summer of 2014 BEREC completed the review of the guidelines that were presented in the above specified ERG Common Position.⁶² There it was stated that the BEREC considered that the guidelines from 2008 still adequately applied, as far as they reached, particularly with respect to the more traditional electronic communications copper networks. There was however considered reason to update the guidelines with respect to market and technical developments from 2008, among other things because of increased distribution of NGA networks. Though the guidelines applied to geographic definition of all markets that the NRAs analysed, the new document placed special emphasis on the wholesale market for local access provided at a fixed location (Market 3a) and central access for fixed line connection for mass-market products (Market 3b) It was stated that it was those markets, first and foremost, where it had been considered justifiable to segment into more than one geographic area. This particularly applied to the latter market. Such geographic segmentation had been uncommon in Europe until the writing of the report in 2014. Such plans had furthermore been rejected by the EU Commission, which has a veto power regarding this aspect vis-à-vis EU member states. The ESA has such a veto power vis-à-vis Iceland and Norway, and Lichtenstein.

365. It was furthermore stated that the first question that had to be answered was whether and then under what circumstances there could be a need to segment a market geographically into more than one area. This question could be particularly complex in states where new network operators have entered the market in competition with the electronic communications networks of the operator with significant market power. Historically, geographic markets had in almost all cases been according to the distribution of the electronic communications networks of the operators with significant market power. With respect to markets for fixed line networks, the main rule is that there has only been one party that previously operated a state monopoly that controls a national network in each state. For this reason, it has been the conclusion of the vast majority of market analyses by NRA's in the EEA in recent years that the country is considered to be one geographic market⁶³.

⁶² BEREC Common Position on Geographical Aspects of Market Analysis (definition and remedies), BoR (14) 73, dated 5 June 2014.

⁶³ Exceptions to this arrangement would be the Hull area in England, Finland and Hungary, which have historical explanations as previously stated.

366. Then it is stated in the BEREC report, that the importance of geographic segmentation has undeniably increased in recent years as competitors of the operator with significant market power have increased the distribution of their electronic communications networks and their market share. In some instances, the competitive conditions can have become so different between areas that it would not be justifiable to have an unsegmented geographic market. For this reason, it could be necessary to segment the geographic market into more than one area.

367. In such instances the geographic definition required detailed data and information which was both costly and time-consuming for NRAs to collect and for electronic communications companies to supply. Such detailed gathering of information could under certain circumstances be considered to breach the principle of proportionality. One of the main objectives of the BEREC document in question would be to advise the electronic communications regulatory bodies on these issues or on indications that could justify such detailed geographic analysis. One could thus say that the document investigated on the one hand the competitive development that had taken place from 2008 to 2014 and explained the increased importance of geographical factors in market analysis and on the other hand described the issues or indications that needed to be examined before embarking on an assessment of whether there was a need for detailed analysis of competitive conditions in geographical areas that were purported to differ.

368. With respect to the former issue, that is to say the investigation of development of competition, it was stated that the distribution of the electronic communications networks of the competitors of the operator with significant market power had increased during the period in question. This increased distribution can be explained, among other things by:

- Competitors that provide electronic communications services by leasing of copper local loops.
- More varied technology possibilities where competitors who used more varied technology than before provide increased competition (e.g., cable systems, Wi-Fi and LTE/4G).
- Distribution of next generation networks. The distribution of such networks has been on the increase, variously by private enterprise, public enterprise or cooperation between the two (Public-Private-Partnership). This could radically change the landscape with respect to fixed line network infrastructure. Competitors who have built local fibre-optic networks could, where the operator with significant market power is not a leader in fibre-optic rollout, provide competitive pressure on the operator with significant market power⁶⁴.

369. It was also stated in the BEREC report in question that investment in distribution of electronic communications networks (other than copper systems) and an increased number of local networks can lead to a kind of patchwork where next generation systems were almost randomly available here and there in the state in question with only traditional electronic communications networks in other areas. Then there was a number of areas which were exceptional with respect to the number of networks, number of electronic communications

⁶⁴ It was also stated that at many locations in the countryside, fibre-optic networks have been rolled out with public funding. Such local networks, which can often be arbitrarily found here and there in individual states, can have an impact on market analysis. One could consider it likely that most of them have been developed in accordance with conditions for state aid and should therefore be open to all electronic communications companies, which ensures competition at wholesale and retail level in the areas in question.

companies operating in the area and the competition environment in other respects. It then depended on how the service market in question was defined whether the new systems provided substitutability for the services of the party with market domination and thus belong to the relevant market, e.g., whether there was substitutability between connections by fibre-optic and copper network.

370. The BEREC report examines which factors needed to be examined before embarking on an assessment of whether a detailed analysis of competitive conditions is required in purportedly dissimilar geographic areas. In Item b of Section IV of the report, there is discussion on the main factors to be examined in this connection:

- *Distribution of competitors electronic communications networks.* The normal starting point for the analysis is to examine distribution of the electronic communications network of competitors to the operator with significant market power. The electronic communications network regulatory body in question needs to have a clear overview of the networks in the relevant area, of electronic communications companies operating in the area and of the characteristics of services in the area.
- *Competitive pressure* of competitor electronic communications networks on the retail market.
- *Service offer.* One must examine whether the service offer varies between areas, for example with respect to specific service categories or product bundles.
- *The number of electronic communications companies* in each area and their market share.
- *Pricing.* One must examine prices and possible price difference between areas. If the prices of the operator with significant market power and his competitors are the same for the whole country, then this is an indication that the geographic market is the whole country.

371. In the report, it is furthermore stated that one is not required to analyse separate geographic markets unless the competitive conditions vary so greatly between areas that this could possibly impact either the designation of an undertaking with significant market power, or the competition problems that had been identified. "Real" competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications undertakings, for example in their pricing, and the impact of this behaviour on the structure of the market, for example market share. In order to be able to analyse a distinct geographic market there must therefore be convincing indications, relating both to the structure of the relevant market and to the behaviour of parties to the market, that competitive conditions vary considerably from those in other areas within the state in question.

372. It is furthermore stated that as the main purpose of the imposition of obligations is to ensure effective competition for the benefit of consumers, the starting point for geographic analysis should generally be the survey of competitive conditions in related retail markets if obligations were not in place on the wholesale market being examined (modified greenfield approach).

373. Subsequent to this the BEREC document in question discusses the factors that should be examined, should the interim conclusion of the relevant electronic communications regulatory body reveal the need for a more detailed geographic analysis of the market in question. Then

one must among other things make a detailed analysis of competitive conditions in related retail markets, of the network structure of the various parties to the market and assess homogeneity of competitive conditions in addition to identifying sensible criteria for the selection of geographic areas for further analysis. With respect to assessment of homogeneity of competitive conditions one must examine factors such as access barriers, number of electronic communications operators, their market share, possible price and/or quality difference, possible difference in marketing and one must examine possible difference in the nature of demand by area.

374. The BEREC Common Position furthermore allows for the possibility of imposing varying obligations on parties to the market, depending on area in order to tackle varying competitive conditions between areas should there not be grounds for dividing a specific service market into more than one geographic market. This means that there are less stringent requirements for authorisation to prescribe varying obligations on an operator with significant market power than for geographic segmentation of markets into more than one area.

5.3 The impact of next generation networks and number of infrastructure competitors on geographic analysis

5.3.1 General

375. The dynamics of competition, and therefore the need for detailed analysis of geographic markets, can vary depending on whether the main concern of the analysis is directed at the traditional copper networks or the next generation networks (e.g., FTTH fibre-optic networks). The building of such next generation networks has grown incrementally in Europe, including in this country, during recent years.⁶⁵

376. When one keeps in mind that the dynamics of competition can vary in differing environments of next generation networks, it is not unreasonable to take a closer look at specific aspects in geographic definition of markets that are characterised by the existence of such networks.⁶⁶

5.3.2 The impact of next generation networks on competition

377. As previously stated, the deployment of next generation electronic communications networks (such as e.g., FTTH fibre-optic networks) could significantly alter the dynamics of competition on broadband markets. This could relate to the deployment of such networks by the operator with significant market power, by his competitor/competitors or by both/all of these parties, including municipalities and utilities.

378. In this connection it states among other things in the EU Commission Recommendation on regulated access to the NGA networks from 2010 that the deployment of NGA networks is

⁶⁵ The distribution of such networks is however at very differing stages of development in the various countries in Europe.

⁶⁶ See, among other things, pages 31-34 in the above specified BEREC Common Position from 2014 and the EU Commission Recommendation on regulated access to next generation mobile networks from 2010.

likely to lead to important changes in the economic reality of providing broadband access, and in the competition situation. It is recommended that NRAs carefully examine the development that may take place in competitive conditions as a result of the deployment of such networks, including the impact of possible definitions of geographic markets if varying competitive conditions are identified that are stable over a period of time.

379. The above Recommendation also describe that instead of separate geographic markets, the NRAs can consider imposing differing obligations on parties with significant market power, by area, among other things with respect to access obligations, despite the lack of a significant difference in competitive conditions between regions if it proves necessary to react to the difference that is however identified in competitive conditions between regions that cannot be considered significant. In such instances, the geographic market is nevertheless decided to be the whole country.

380. Ever since the case *UK/2007/0733 (Wholesale Broadband Access)* the EU has understood the impact of upgrading to the next generation of networks on competition. There was discussion there on the impact that investments in next generation electronic communications networks could have on sustainability of investments in the copper system. There it was stated that investments in next generation networks could lead to a reduction in local loop lease in copper systems, and such investments would not be as attractive as before.

381. The roll-out of next generation electronic communications networks of an operator with significant market power could have a significant impact on the business model of competitors. The closing of telephone exchanges that are no longer needed to provide service on next generation networks could lower the profit expectations from local loop lease in copper systems, particularly if local loop lease in street cabinets becomes economically infeasible. It could mean that those requesting access might need to migrate to other solutions, e.g., to bitstream.

382. If geographic differentiation of markets or varying obligations hinges on areas on Market 3b and access products on Market 3a, which could be decommissioned because of deployment of next generation networks of the operator with significant market power, it could be necessary to review such differentiation or varying obligations on Market 3b. When conducting analysis, one needs to look to the future with regards to possibilities in such development. Electronic communications undertakings that have relied on local loop lease in copper could therefore withdraw from such access.

383. In such a scenario, the competitive pressure which parties leasing local loops exert on the operator with significant market power in the environment of next generation networks also depends on whether realistic access options exist to the next generation network in question operated by the operator with significant market power (real access or virtual access). The conclusion here could be the deciding factor in assessment of whether it is appropriate to provide for geographic differentiation or different obligations on Market 3b.

384. Distribution of next generation networks may therefore possibly alter competitive conditions on Markets 3a and 3b. Co-investment in such networks could for example, under certain circumstances change the interaction between the wholesale markets in question. Competition that had been based on leasing copper local loops (LLU) could decrease in areas where such next generation networks were developed if competitors of the dominant parties switched to active access (bitstream) instead of continuing to invest in local loop lease. The

above specified factors, when viewed as a whole, could affect the possibilities for NRAs to distinguish between competitive conditions in the various areas.

5.3.3 Geographical definition of markets, according to the EU Commission Recommendation on next generation networks

385. In the above specified EU Commission Recommendation on regulated access to Next Generation electronic communications networks, two scenarios are shown that could apply when an assessment is made of the impact that distribution of such networks could have on competitive conditions on Market 3a, depending on how many such networks are in operation in a given region. The regulation discusses, among other things the scenarios where such networks exist on the one hand and on the other hand where only one such network exists, which is built by more than one party to the market through co-investment.

386. It is stated in the EU Recommendation in question⁶⁷ that circumstances that occur in such scenarios have a direct impact on the geographic analysis that NRAs must conduct, as in both instances, it is assumed that such distribution of next generation networks will not cover the country as a whole (at least not to begin with) as such networks will be deployed gradually, step-by-step. The discussion particularly applied to Market 3a.

387. In paragraph 22 in the Recommendation in question it is stated that in accordance with the main principles prescribed in the EU Access Directive⁶⁸, NRAs should generally impose access obligations on the fibre-optic local loops of the operator with significant market power where they have been deployed. This may only be deviated from in areas where several competitors' infrastructures are in place (e.g., FTTH and/or cable) which could offer competitive options likely to result in effective competition on the relevant market, or on downstream markets (e.g., bitstream market).⁶⁹

388. In the above specified BEREC Common Position from 2014 it states that the scenario shown above applies to those circumstances where effective competition on the relevant market or downstream markets from M3a in the value chain, e.g., on Market 3b, could justify a decision by the NRA not to impose an obligation for access on fibre-optic local loops of the operator with significant market power on M3a or to withdraw such obligations. This effective competition on the market in question or on downstream markets from Market 3a would be most likely to happen when several next generation network competitors of the operator with significant market power were in place, and also local loop access to such networks.

389. It is then stated in the above specified BEREC document with respect to competitive pressure from infrastructure competitors of the operator with significant market power, e.g.,

⁶⁷ See Paragraphs 146-161 in the Recommendation in question.

⁶⁸ Directive 2002/19/EC.

⁶⁹ In item 20 in the preamble to the Directive, it says. It should be noted that Market 4, which is referred to there, is in most respects, comparable to the current Market 3a: *"Where remedies imposed on Market 4 lead to effective competition in the corresponding downstream market, in the whole market or in certain geographic areas, other remedies could be withdrawn in the market or areas concerned. Such withdrawal would be indicated, for instance, if the successful imposition of physical access remedies were to render additional bitstream remedies redundant. Moreover, in exceptional circumstances, NRAs could refrain from imposing unbundled access to the fibre loop in geographic areas where the presence of several alternative infrastructures, such as FTTH networks and/or cable, in combination with competitive access offers on the basis of unbundling, is likely to result in effective competition on the downstream level."* (PTA emphases edit)

cable operator, that it would be likely that the existence of retail service based on cable networks would in this scenario be a significant factor when assessing whether access obligations should be imposed on the fibre-optic local loops of the operator with significant market power. On the other hand, BEREC referred to its report on “*co-investment and on SMP in next generation networks*”⁷⁰ where it was stated that a market with only two infrastructure companies raised questions about market power and competitive situation in other respects, particularly if in that case, access barriers were high. A market of this structure meant inevitably that one party had more than 50% market share.

390. It is then stated in the above specified BEREC Common Position from 2014, that a market characterised by only two infrastructure companies could therefore be assessed such that adequate competition was not present to the extent that the withdrawal of obligations on the operator with significant market power could be justified. BEREC had previously supported the economic theory that there could be a risk of damaging collusion in a market of this structure.⁷¹

391. It is also stated in the above specified BEREC document that NRAs can also take other appropriate factors into account in order to assess competitive conditions for the future on upstream markets from Market 3a in the value chain, among other things wholesale access to civil/physical infrastructure.⁷²

392. In some areas, competition in infrastructure may exist. If competition is adequately active, it can be justifiable for NRAs to segment geographic markets.

393. As stated above, Paragraph 22 of the EU Commission Recommendation for regulated access to next generation electronic communications networks, says that it can be appropriate for NRAs to refrain from imposing access obligations on fibre-optic local loops of the party that may have significant market power, in specific areas if *several* other competitor’s infrastructures were in place that could offer competitive options for wholesale access, which would be likely to result in effective competition on the market in question or downstream markets (e.g., the bitstream market). Regarding the latter condition, i.e., that competitive options for wholesale access were available from competitors of the operator with significant market power, BEREC stated in the Common Position from 2014 that the existence of such competitive wholesale access could certainly be an indication of effective competition. On the other hand, the fact that competitors did not provide such access on its own, did not necessarily mean that competition was not active on related retail markets.

394. When the decision was made as to whether obligations were appropriate in the specific region or not, it could be appropriate to take into account, whether sustainable wholesale access would be offered without wholesale obligations (modified greenfield approach). Other factors

⁷⁰ See BEREC Report on co-investment and significant market power (SMP) in Next Generation Access Networks (NGA), BoR (12) 41, from 24 May 2012.

⁷¹ See paragraph 152 in the above specified BEREC Common position.

⁷² See paragraph 153 in the above specified BEREC Common Position. Then it is stated in footnote 71: “*As repeatedly noted by the European Commission and by NRAs, in certain Member States access to civil engineering assets constitutes a key regulatory condition to ensure the prospects of effective retail competition, because of its economic and technical importance for the purposes of NGA deployments. Effective access to the passive infrastructure may thus pave the way for the efficient entry of alternative operators that will compete head-to-head with the SMP operator in the new NGA scenario.*”

that should normally be examined, were among other things, whether competition and infrastructure was adequate in the region in question.

395. It was BEREC's conclusion in the said Common Position that those aspects dealt with here later, on assessment of homogeneity of competitive conditions in specific regions (i.e., access barriers, number of significant competitors, market share, pricing, market policy, service offer, nature of demand and quality of service) applied also to the scenario where traditional copper connections were upgraded to the next generation of electronic communications networks. Competition in infrastructure could in certain instances be sufficient to come to the conclusion that competition was active on the underlying market and that therefore obligations should not be imposed in the regions in question. This was however subject to assessment in each individual case having taken into account the conditions in the country in question.

396. The other scenario that is presented in the above specified EU Commission Recommendation on regulated access to next generation electronic communications networks, where effective competition should be able to prevail, applies to those instances where only one such network was in place which was deployed by more than one party to the market through co-investment.⁷³ This scenario could lead to more limited competition than the other scenario which deals with the existence of a number of next generation networks, where there was only one FTTH fibre-optic network in place. In such instances, in addition to assessment of the competitive pressure exerted by competitors, it was necessary to closely examine the agreement in place between the parties that jointly deployed the network in question and assess whether the arrangement led to effective competition in markets downstream of Market 3a in the value chain.

397. In general, more is needed for this latter scenario to lead to the conclusion that effective competition is in place. Among other things the arrangement in question must be based on several electronic communications undertakings having access to their own optical fibre, on non-discrimination and cost analysed prices applying between parties to the project, on there being competition between them on markets downstream from Market 3a in the value chain and there needed to be space in the ducts or conduits for third parties.

5.3.4 The impact of multiple competitors on Market 3a on geographic analysis and SMP in the environment of next generation electronic communications networks.

398. In the BEREC report on co-investment and significant market power in the environment of next generation electronic communications networks from 2012 there is among other things discussion on the impact of multiple competitors on the wholesale market for local access provided at a fixed location (Market 3a) on geographic analysis and significant market power in the environment of next generation electronic communications networks.⁷⁴

⁷³ See paragraph 28 of the EU Commission Recommendation on regulated access to Next Generation electronic communications networks from 2010 and Paragraphs 158-161 in the BEREC Common Position from 2014. In the former paragraph it says among other things the following: *Where the conditions of competition in the area covered by the joint deployment of FTTH networks based on multiple fibre lines by several co-investors are substantially different, i.e. such as to justify the definition of a separate geographic market, NRAs should examine, in the course of their market analysis, whether, in the light of the level of infrastructure competition resulting from the co-investment, a finding of SMP is warranted with regard to that market.* (PTA emphases edit)

⁷⁴ See Section 3.1.3 BEREC Report on co-investment and SMP in NGA networks, BoR (12) 41, from April 2012.

399. It is stated there that the deployment of electronic communications networks was characterised by high fixed and sunk costs. In the case of co-investment, the number of parties who shared the cost of deployment of the electronic communications network increased, as also did the parties who could provide wholesale access in Market 3a. The increase in direct competitors on the market in question was likely to encourage effective competition, both at wholesale and retail level, particularly in the case of fibre-optic connections.

400. It was also stated there that such co-investment in electronic communications networks could either result in positive competitive impact on the wholesale and retail markets or lead to damaging collusion between the parties involved in the co-investment, which would have damaging results for consumers. The final impact of such cooperation on the market in question was decided among other things, by the number of active competitors on the market both within and outside the cooperation.

401. Market 3a was one of those markets where the EU Commission had come to the conclusion that effective competition was generally not in place and should therefore be susceptible to market analysis and ex ante regulation if NRAs came to the conclusion that one or more electronic communications undertakings enjoyed significant market power. In the Commission Guidelines on market analysis and assessment of significant market power from 2002 it states among other things that the Commission's decision-making practice showed that concerns about single dominance arose in the case of market shares of over 40% even though such dominance could be found under certain conditions with a lower market share. A very large market share, i.e., over 50% was sufficient on its own to demonstrate significant market power unless there were exceptional circumstances.

402. In the above specified BEREC document it was furthermore stated that the structure of a market characterised by two operators implies axiomatically that one of the players would have more than 50% market share. A market characterised by high entry barriers where only one or two parties operated, raised questions on significant market power and in general on the competitive situation on the relevant market.

403. The above thesis is supported in a multitude of research. Among others in a study by the Dutch NRA (then OPTA now ACM) entitled "*Is two enough?*". The conclusion was that effective competition was unlikely where only two companies were operating on a given market.⁷⁵ Furthermore, in research by Huck-Normann-Öchssler from 2004 which dealt with oligopolies.⁷⁶ The authors of the report came to the conclusion that damaging collusion had come to light when only two companies were operating on a specific market or markets and not when they were four or five. They had thus asserted that "*two were few and four were many*". Another example can be taken from research published in 1991 by Bresnahan and Reiss. The research had assessed market power on the basis of number of competitors on various local markets for car tyres. The conclusion was that the entry of a third party to the market caused a significant decrease in market share of the two incumbents on the relevant market. The impact was less with the entry of a fourth party to the market. A monopolist had 81% higher variable profits per customer than in the case of a duopoly. The party who was the second to enter the market then had 28% higher variable profit per customer than third party

⁷⁵ There it is stated among other things: "*An exemption is stated in case the assumptions of a static Bertrand game are fulfilled, the market is contestable, or the market is a bidding market. But in the markets in question these assumptions are described to be not realistic. In market 4 in particular it can be assumed that interactions are frequent.*"

⁷⁶ See Huck, S.; Normann, H.-T.; Oechssler, J.: Two are few and went are many: number effects in experimental oligopolies (2004), Journal of Economic Behaviour and Organization, Vol. 53, pp. 435-446.

and the third party only 4% higher than the fourth. The conclusion was that the entry of a second, and third party to the relevant market increased competition most and that such an impact was rapidly evidenced with each entry.

404. Then it is stated in the above specified BEREC document that these examples could be rather scientific or academic, but that they nevertheless demonstrated an underlying economic causal relationship in this connection, which was useful for NRAs when conducting market analyses.

405. There are examples that the EU Commission had shared the above-mentioned views in its resolutions. One could mention, for example, when the Commission agreed to the plans of the Slovenian NRA (then APEK and now AKOS) to maintain designation on parties with significant market power and obligations on a mobile phone market in that country. It had been stated there that it did not suffice to assure consumer interests that only two mobile phone network operators could offer a service covering the whole country.

406. Then the question had been asked whether the existence of more than two parties (e.g., three or four) on a specific market ensured effective competition. The conclusion was that it hinged on a number of factors, particularly on the issue of whether these parties were sufficiently independent and autonomous. Whether this was assessed in a detailed manner in market analysis or based on more specific criteria, one could generally see that there would not be much likelihood of damaging collusion or limited competition if the competitors were more than two (e.g., three or four) and that they were sufficiently independent and autonomous. NRAs must also take into account all parties that operated on markets downstream of Market 3a in the value chain when assessing whether oligopoly on Market 3a could manifest itself in damaging collusion on that market.

407. It furthermore states in the BEREC document in question that indirect competitive pressure from, e.g., cable operators and/or FTTH operators that do not offer wholesale access on Market 3a, would have a smaller impact on Market 3a than on Markets 3b. The same applied to direct competitive pressure if the parties in question did not offer wholesale access on Market 3a. It was therefore unlikely that, e.g., the market structure which consisted of FTTH operators and a cable operator in addition (as one of the FTTH operators and the cable operator did not provide wholesale service on Market 3a) would lead to effective competition on Market 3a, though, such a market structure could under ideal conditions lead to effective competition at retail level.

408. It was finally stated in the BEREC document in question that when deployment of the next generation electronic communications network or networks of a competitor or competitors to the potentially operator with significant market power did not suffice to ensure effective competition, then continuing obligations on the electric communications network of the operator with significant market power (including fibre-optic network) would be necessary to protect consumers from the consequences of misuse of significant market power by the SMP operator.

5.4 The risk and/or gain from geographic measures by area

409. The conclusion that there is a need for detailed geographic analysis of the market in question constitutes recognition that competitive conditions may vary by area, which could call

for differing geographic approaches by area. It is important to keep in mind that it is only necessary to impose obligations where there is a real need for them and then to the extent needed to resolve an identified competition problem on the relevant market and/or downstream markets. It is generally recognised that such geographic analysis constitutes certain risks that require detailed examination on a case-by-case basis.⁷⁷

410. In the BEREC document in question it is stated that when NRAs conduct geographic analysis, they should maintain a balance between possible errors which could result from such an analysis. On the one hand there is Type 1 error where deregulation (or the imposition of lighter regulation) had been implemented when in fact regulation (or stronger regulation) should have been imposed. On the other hand, there is Type 2 error where it would have been justified to deregulate (or impose lighter regulation) when regulation is imposed.

411. Type I error means that the wholesale market in question would be subject to under-regulation. This conclusion could result from imprecise assessment of the market conditions that needed to be in place to ensure effective competition. The consequences of such would normally be impairment of the competitive pressure directed at potential operators with significant market power and could manifest itself in a price increase or in diminished quality and innovation, to the disadvantage of consumers. In addition to this, entry to the market in question could become more difficult, which could lead to diminishing competitive pressure at retail level.

412. Type I error on Market 3b could furthermore result from a misunderstanding of end user needs. If electronic communications companies that for example served large customers on the corporate market, needed wholesale products that cover the whole country, as this would reduce business and software costs for the electronic communications companies in question when they reacted to demand from the large corporate customers that would always want to interconnect all of their operations locations. The withdrawal of bitstream obligations in certain regions could lead to a shortage of wholesale access from operators with significant market power which could lead to those requesting access having to rely on wholesale access from local parties on business conditions, were such access actually available. On the other hand, the fact that some service providers might choose wholesale access from one specific party does not mean, on its own, that the relevant market was the whole country. If there were, for example, a sufficient number of service providers in an area which had been deregulated that operated their own electronic communications network in the area in question or could purchase wholesale access from a party other than the former operator with significant market power in that area, such parties should not need to worry about not being able to provide services to such large companies. These deliberations call for assessment on a case-by-case basis.

413. On the other hand, Type 2 error would mean that regulation would continue in the area or areas where there was considerable or even effective competition in place. This could lessen the incentive for the potential operator with significant market power to introduce innovation which could provide benefits for consumers. There were examples in Europe, where deregulation on Market 3b, and thus freedom for the operator with significant market power on that market, had in some instances led to innovation in the structure of product bundles, increased speed of connections and lower price for broadband service at retail level.

⁷⁷ See, e.g., pages 36-37 in the above specified BEREC Common Position from 2014.

414. It was then stated in the BEREC Common Position that in addition to the above specified errors, geographic analysis could pose certain questions on other important aspects which the NRAs might need to consider.

415. First, the geographic analysis of the relevant market could influence price structure of regulated wholesale service. Deregulation of the competition area could exclude a region with lower development costs (common in urban areas), from the calculation of average prices in the area as obligations would still apply (usually rural areas) and thus the regulated wholesale price would increase. This could lead to higher retail prices in those areas that would remain regulated or lower profits from service providers if the retail price of the operator with significant market power continued to be level across the country. This could lead to less competition in those areas that were still regulated. NRAs had an available tool to tackle such a problem if they considered it necessary to maintain comparable prices across the country.⁷⁸ This could however result in a negative impact on other connected markets, e.g., predatory pricing by the operator with significant market power in the deregulated areas by virtue of cross subsidies from the regulated areas.

416. Second, one should consider the impact it would have on consumers if geographic segmentation of the relevant market were to result in differing prices at retail level between areas or would increase such a difference. Though this could be explained by a more efficient price setting which among other things better reflected underlying costs, it could be particularly difficult for consumers to understand such a price difference as the lower price was only on offer in some areas. Attention should also be paid to the level of transparency as it could be difficult for consumers to understand what terms were on offer in their area.

417. Third, both geographic segmentation of markets and varying geographic obligations could result in an increased burden for NRAs and parties to the market in the delivering of detailed data and its processing, and also from more complex obligations and definitions of the areas in question. Geographic segmentation could also have consequences for homogeneity in access obligations with respect to access to telephone exchanges/distribution points, particularly when those areas that were selected were not compatible with the network structure of the operator with significant market power.

5.5 Geographical delineation and/or varying obligations by area

418. As has been previously stated, there are two ways to deal with regional variations in competitive conditions.⁷⁹

419. The first option would be to segment geographic markets when defining a geographic market. These geographic markets or the set of these markets where comparable competitive conditions pertained would then each be analysed in turn and conclusions drawn regarding the designation of an undertaking or undertakings with significant market power.

⁷⁸ In the EU Commission Recommendation on Consistent Non-discrimination Obligations and Costing Methodologies from 2013 it states among other things that they: „... *also contains some indications of the way differences in the competitive conditions prevailing in different geographic areas may affect the design of the wholesale remedies by the NRA.*“

⁷⁹ See, e.g., pages 35-36 in the above specified BEREC Common Position from 2014.

420. The second option would be to come to the conclusion that the geographic market was the whole country, analyse this market for the purpose of designating parties with significant market power and subsequently apply varying geographic obligations, having taken into account varying competitive conditions by area.

421. It was stated that the prior method was applied when the NRA had come to the conclusion that the market structure and the competitive situation were in other respects significantly different between regions, i.e., when competition was considered active in a given area or given areas/set of areas to the extent that no party had significant market power, and obligations should thus be withdrawn or not imposed. Experience has shown that it could be difficult to reconsider deregulation on markets where effective competition had been deemed to be in place and obligations withdrawn for that reason.⁸⁰

422. NRAs however should not regard the two methods specified above, as equally valid to choose between when competition develops in an uneven manner within a specific state.

423. When available data indicated definitively that the market in question should be segmented, assessment of significant market power should be conducted for each area (or set of comparable areas) and appropriate obligations should be imposed on the relevant areas on the party designated as having significant market power, in order to endeavour to resolve the competition problems that had been identified there. If effective competition was considered to be in place in any areas or set of comparable areas, then no obligations should be imposed there, as no party was designated as having significant market power.

424. However, assessment of significant market power should be conducted for the whole country if available data indicated that the market should not be geographically segmented. This applied when varying competitive conditions were still not sufficiently stable or sustainable to justify segmentation of geographic markets. In such instances it could be justifiable to impose varying obligations by area, despite the fact that a specific party had been designated as having significant market power for the country as a whole.

425. In the EU Commission Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment from September 2013⁸¹ several examples were cited of methods that could be used when imposing varying obligations by area. It was particularly noted that varying competitive conditions between regions could lead to circumstances where there was a need for price control in areas where there was little or no competition, while there was no need for such obligations in areas where competition pertained, for as long as appropriate safeguards were in place.⁸²

⁸⁰ See, e.g., the Austrian case on the market for terminating segments of leased lines, AT/2008/0836, and AT/2013/1442. The Austrian NRA, RTR had in the prior case divided the geographic market into two areas (12 municipalities on the one hand and the rest of Austria on the other). When the NRA planned in the latter case to lift this segmentation such that obligations should apply across the whole country, the EU Commission exercised its veto power.

⁸¹ EU Commission Recommendation on consistent non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment, dated 11 September 2013.

⁸² See, e.g., Paragraphs 48-50 in the Recommendation in question. In Subparagraph 74 in the BEREC Common Position on geographic analysis from 2014 the following is said about this issue: *"In particular, equivalence of input (EoI), obligations relating to technical replicability when EoI is not fully implemented, obligations relating to economic replicability, and sufficient competition safeguards leading to a demonstrable retail constraint being exerted on the SMP operator (see sections 48-49)."*

426. It was furthermore stated in the above specified Recommendation regarding the economic replicability test (ERT), that NRAs may need to adopt this, having taken into account the varying competitive conditions that may have been defined by area. One example of this could be to take into account the fact that the most appropriate next generation access product that was needed for applying the test could vary between rural and urban areas.⁸³

5.6 Definition of geographic markets in Europe

5.6.1 General

427. In the above-mentioned BEREC Common Position from 2014, one furthermore sees discussion of market analysis made by European NRAs with respect to matters of contention related to geographic segmentation of markets and/or the imposition of varying obligations on operators significant market power by geographic area. This was discussion of analyses that were made subsequent to publication of the above specified ERG report on geographic segmentation of markets in 2008 and up to the year 2014.⁸⁴

428. On 6 December 2018, BEREC published a Report on experience of applying the above specified BEREC Common Position with respect to geographic analysis from 2014.⁸⁵ It is stated there among other things that increased competition on European electronic communications markets between electronic communications companies, which often use varying electronic communications infrastructure, had resulted in NRAs increasingly directing their attention at geographic segmentation of markets. Electronic communications companies that rolled out their own electronic communications networks and those that used access to a network of the operator significant market power did not necessarily offer electronic communications services across the whole country and they would also often offer varying speeds and/or quality by area.

429. In the latter referenced report it is also stated that from the time that the BEREC Common Position was published in the summer of 2014, many NRAs had used it in their work. It was furthermore stated that the EU Commission has published new Recommendation on the relevant markets that were susceptible to ex ante regulation in October 2014 and new Guidelines on market analysis and assessment of significant market power in May 2018. These publications contain discussion and guidelines on geographic segmentation of electronic communications markets, and they were broadly in accordance with the above specified BEREC Common Position from 2014.

430. The main purpose of the above specified BEREC report from 2018 was to provide an overview of experience of NRAs in geographic analysis of markets in the light of increased

⁸³ See Appendix II in the Recommendation.

⁸⁴ In the ERG report in question those cases were discussed that had been published up to 2008 and that related to geographic segmentation of markets. With regards to the markets here under discussion one could particularly mention cases that relate to the United Kingdom from 2007, Austria from 2007 and Portugal from 2008 which all related to the bitstream market. In the above-mentioned UK case concerning the bitstream market, the UK NRA (OFCOM) segmented the geographic market into more than one market. Competition areas were defined as areas where a specific number of competitors had to be operating and in addition to this, where the SMP operator (BT) had less than 50% market share in the area in question.

⁸⁵ See BEREC Report on the application of the Common Position on geographic aspects of market analysis – BoR (18) 213 from 6 December 2018.

importance of such analysis. The report gives a view of the situation until May 2018. At that point in time, 14 European states had applied geographic segmentation or had imposed varying obligations by area while 19 had not done this. As is shown in the figures below from the report in question, it was much more common that such measures related to wholesale markets for central access provided at a fixed location for mass-market products (Market 3b)⁸⁶ than for wholesale markets for local access provided at a fixed location (Market 3a)⁸⁷. Seven states had applied such measures on Market 3a while 12 states had applied them on Market 3b.

Table 5.1 Overview of market analyses concerning geographic measures until May 2018

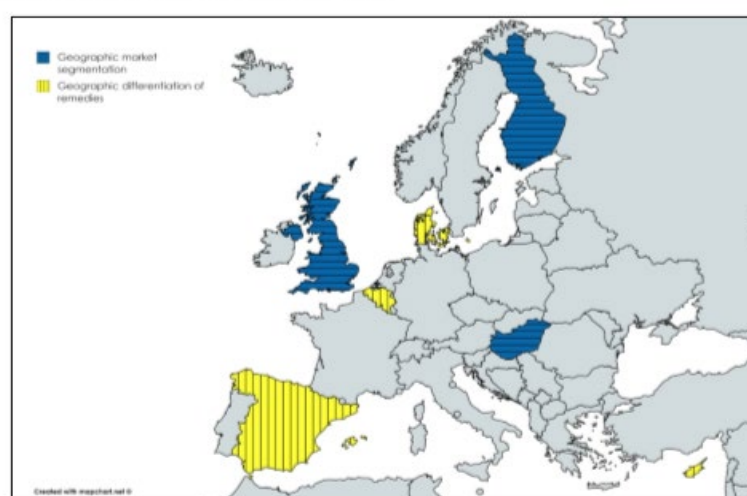
Table 1: Overview of cases with/without geographic segmentation (as of May 2018)

	market 3a	market 3b	market 4	other markets
geographic market segmentation		BE ³⁰ , DE, ES, IE, PL	AT	BE ⁴⁰ , ES ⁴¹
	HU			
	FI, UK			
		PT ^{42,43}		
geographic differentiation of remedies in a national market	CY, ES	SI	IE ⁴⁴	
		FR		
	DK	PT ⁴³		
	BE ³⁹			
no geographic segmentation	BG, CH, CZ, EE, HR, GR, IT, LI, LT, LU, LV, ME, MT, NL, NO, RO, ⁴⁵ RS, SE, SK			

431. As can be seen in the figure 5.1 here below, only three states segmented separate geographic markets in Market 3a in May 2018, i.e., United Kingdom⁸⁸, Finland and Hungary. As previously stated, this was for historical reasons as no single electronic communications company in the states covers the whole country and the electronic communications networks in general do not overlap. This situation has however been in a state of flux during recent years in Hungary as explained below. There were four states that had imposed varying obligations by area on the market in question at the point of time in question, i.e., Denmark, Belgium, Spain and Cyprus.

Figure 5.1 Regulation relating to geographic measures in Europe on Market 3a to May 2018

Map 1: Regulatory approaches in Europe – Market 3a



⁸⁶ What was previously called bitstream access.

⁸⁷ What was previously called local loop lease.

⁸⁸ The UK has now left the EU and is not a part of the EEA.

432. It is appropriate to provide further discussion on the conditions in Hungary. In the market analysis from 2011 of what are now Markets 3a and 3b, markets were segmented geographically into three in line with the deployment of the country's three electronic communications networks that did not overlap, and the three companies were designated as electronic communications undertakings with significant market power, each in its own area. A new market analysis was conducted in Hungary in 2017. Circumstances had then changed such that new electronic communications companies were expanding into the operating territory of these electronic communications companies with deployment of their own infrastructure. The conclusion in 2017 was to divide the country into six areas such that the operating territory of each of the above specified three parties was divided into two areas, i.e., on the one hand competitive areas and on the other hand areas with limited competition. This market analysis, and many others, will be explained in more detail in Appendix A-1.

433. Since May 2018, two states have joined the group of three states that have segmented geographic markets in Market 3a, i.e., Italy and Poland. In July 2019 the EU Commission accepted a draft market analysis from AGCOM, the Italian NRA,⁸⁹ which allowed for the division of Italy into two areas for the market in question, i.e., Milan on the one hand and the rest of Italy on the other. The reason why Milan was considered a separate market was that there were three varying access networks there, i.e., besides the network operated by the former incumbent. The conclusion was that there was effective competition in that city on the market in question and for this reason, obligations were withdrawn from the former incumbent. Varying geographic obligations were furthermore prescribed in the market analysis in question. There will be further discussion on this Italian case and on the Poland⁹⁰ case, along with the cases of a large number of other European states that relate to geographic measures, in a special Appendix A-1.

434. As is shown in table 5.1 above, four countries had imposed varying obligations on Market 3a at the point in time in question, i.e., Denmark, Belgium, Spain and Cyprus. Italy joined them in the year 2019, where the above specified Decision by AGCOM allowed for, as stated above, separate geographic markets and varying obligations. One could say that two other states applied varying obligations on Market 3a, i.e., Sweden and Ireland. In Sweden, PTS allowed Telia to apply varying prices by number of inhabitants and type of premises. In Ireland there are varying prices for masts, ducts and conduits and for access to dark fibre, depending on the area.

435. This means that 10 states within the EEA apply geographic measures on Market 3a today. On the other hand, more than 20 states have not applied any geographic measures on the market in question. According to the above, four states within the EEA segmented geographic markets on Market 3a, in addition to the United Kingdom, which is no longer in the EU nor in the EEA. Apart from that, six states apply varying obligations, including Italy, which both segments geographic markets and applies varying obligations.

436. As previously stated, a number of additional countries have applied geographic measures on the wholesale market for central access provided at a fixed location for mass-market products (Market 3b). This should not come as a surprise as it is generally more likely that competitive conditions will vary, the higher in the value chain the market is. In many places in Europe, obligations on Market 3a led to increased competition on the bitstream market, and it is clear that wholesale obligations on Market 3a should, all things being equal, have a positive

⁸⁹ See IT/2019/2181-2182.

⁹⁰ See PL/2019/2160.

influence on competitive conditions on Market 3b. The use of wholesale service is not evenly spread across the country and usually begins in urban areas. Such increases the likelihood of geographic difference in competitive conditions on Market 3b.

437. As one can see from the figure below from the BEREC report in question, nine states had segmented Market 3b geographically in May 2018, i.e., United Kingdom, Finland, Hungary, Spain, Portugal, Poland, Germany, Ireland and Belgium.⁹¹ In the summer of 2019, Italy and Lithuania joined the 9 states that had segmented geographic markets and the four states that had imposed obligations that varied by area, i.e., Denmark, Slovenia, France and Belgium⁹¹. In the summer of 2019, Italy and Lithuania joined the 9 states that had segmented geographic markets and the four states that had imposed obligations that varied by area. This means that 13 states within the EEA have applied geographic measures on Market 3b, as has the United Kingdom which no longer belongs to this area. On the other hand, more than 20 states have not applied any geographic measures on the market in question.

Figure 5.2 Regulation relating to geographic measures in Europe on Market 3b to May 2018

Map 2: Regulatory approaches in Europe – Market 3b



438. In the above specified BEREC report from 2018 the reasons for the increased importance of geographic analysis in Markets 3a and 3b are explained. The main reason is on the one hand said to be related to the deployment of next generation networks (e.g., fibre-optic networks), and on the other hand the uptake of regulated access to electronic communications networks. The latter reason applies first and foremost to Market 3b. BEREC considers that as this development will continue, the importance of geographic analysis will further increase in the future.

439. In the report, the main reasons for varying competitive conditions between regions is furthermore explained. With respect to Market 3a, the reason is first and foremost the deployment of next generation networks by competitors of the operator with significant market

⁹¹ As is discussed in more detail in Appendix A-1, the Belgians have separated markets geographically on Market 3b and have imposed varying obligations and the service market in that country is divided into two.

power (e.g., in the form of fibre-optic cable systems). Furthermore, there is the fact that market share of the operator significant market power in wholesale and/or retail has decreased and has begun to fall below a specific level (often set at 40% or 50%). With respect to Market 3b, the same reasons are named and in addition, the uptake of regulated access to wholesale services on Market 3a.

440. It was also stated in the report in question that the vast majority of states that had applied geographic measures had begun by assessing whether there was a geographic difference in competitive conditions on related retail markets if wholesale obligations were not in place (modified greenfield approach). The NRAs in question considered such retail analysis to be an important basis for analysis at wholesale level.

441. The report also studied the criteria that NRAs had used when defining geographic markets. It was stated that a large number of areas were identified on the basis of specific criteria, and they were then categorised into two or more units where competitive conditions were largely comparable. These criteria have first and foremost been based on indications about market structure, e.g., deployment of competitors' networks, market share of operator significant market power and the number of "significant" competitors, rather than market conclusions such as retail or wholesale pricing or product characteristics.

442. There was also discussion on the choosing of appropriate areas in the report in question. There it was stated that the vast majority of NRAs based their division on administrative units, for example on municipalities or postcodes. Very few NRAs used network structure of the operator significant market power, and none of them used the network structure of the competitors alone. The reason why administrative units were chosen was among other things, that they were considered to be clearly delineated and stable and that such units were generally small enough to ensure homogeneity and were sufficiently large for it to be able to analyse competitive conditions in an effective manner without imposing an excessive workload on parties to the market, or on the relevant NRA.

443. The report furthermore dealt with a number of analysed areas within the relevant states. The conclusion was that the number of areas that NRAs examined for geographic analysis could vary considerably and were to some extent dependent on the size of the state in question. This was normally from several hundred to several thousand areas that the NRAs analysed and on which they gathered information.

444. After having analysed the geographic areas, the next step was normally to group those areas with similar competitive conditions. Areas were normally grouped as competitive on the one hand and areas where there was little or no competition on the other hand. Varying criteria could be used for such grouping. On Market 3a the most common criteria used were on the one hand that a specific number of competitors of the potential operator significant market power had begun to deploy their own infrastructure above a specific level and on the other hand that the market share of the potential operator significant market power had fallen below a specific limit at retail level. The same could be said about Market 3b, but in addition it was common to use a criterion based on the number of competitors of the potential operator significant market power. These generally had to be "significant" competitors who achieved for example, 10-15% minimum market share. In the states in question the deployment condition was anything from 20-75% (though usually between 50% and 75%). The criterion for market share of the potential operator significant market power at retail level was variously 40% or 50%.

445. In the said BEREC report, it was stated that most NRAs had included expected future development in the equation when elaborating geographic measures. Both expected development of market shares and expected development of deployment of next generation networks, including fibre-optic networks were taken into account.

5.6.2 Discussion on market analyses in Europe with respect to geographic definition of markets

5.6.2.1 General

446. In order to better understand the requirements made by the EU Commission and ESA for geographic analysis, the accompanying Appendix A-1 will deal with most analyses that have been made within EEA states on those markets here under discussion, to the current date. They are the following cases:

1. Czech Republic (2012)
2. Spain (2015)
3. Cyprus (2016)
4. Hungary (2017)
5. France (2011, 2017 and 2020)
6. Portugal (2017)
7. Slovenia (2017)
8. Denmark (2017)
9. Ireland (2018)
10. Finland (2018)
11. Latvia (2018)
12. Belgium (2018)
13. Norway (2018)
14. United Kingdom (2018-2019)
15. Greece (2019)
16. Germany (2015 og 2019)
17. Italy (2019)
18. Poland (2019)
19. Lithuania (2019)
20. Holland (2019)
21. Sweden (2019-2020)
22. Estonia (2021)

5.6.3 Overview of market analyses in Europe with respect to geographic definition of markets

447. In Appendix A-1, the PTA has covered most if not all cases that relate to geographic definition within the EEA on Markets 3a and 3b that can be of significance here. These are cases from 22 states where geographic measures in the form of differentiated geographic markets and/or varying obligations by area, were variously applied or not.

448. It is clear that the importance of geographic analysis has increased considerably in recent months and years, and an ever-increasing number of NRAs have applied geographic measures to the markets in question, particularly to Market 3b. This development is first and foremost a result of an increased number of next generation networks deployed by companies who are competitors of the former electronic communications incumbent in the states in question. It is normal that geographic measures are first applied high up in the value chain, for example on Market 3b, before they are applied at a lower level, that is to say on Market 3a. As deployment of such networks takes place step-by-step within states, first in the most densely populated and profitable areas, the situation can arise that competition varies between areas within states.

449. As is stated in the above discussion, geographic segmentation has only been applied in 4 states within the EEA on Market 3a, i.e., in Finland, Hungary, Italy and Poland, and also in the United Kingdom, which is no longer a part of the EEA. This has been done from the inception of market analyses in the two first named countries as well as in the United Kingdom, for historical reasons, as in those countries there are local electronic communications companies that have not operated outside their own region. This has changed somewhat in Hungary as these historical boundaries have changed in recent years. The cases of Italy and Poland from 2019, along with the newest market analysis from Hungary from 2017 are the first and only examples of geographic segmentation of the market in question that result from varying competitive conditions between areas that do not have the above specified historical explanations. There is no example of the existence of fewer than three independent networks (including the network of the former SMP operator) having been considered adequate to justify such segmentation of the geographic market. Of the 14 examples of geographic delineation on Market 3b, there are however examples that the existence of two networks has been considered adequate, in conjunction with other conditions, for example in the case of Portugal and Spain.

450. Until recently the EU Commission had been circumspect about such segmentation on Market 3a, but in three recent examples the Commission has considered that the criteria of a number of NRAs had been too strict, and in addition to this, it was pointed out that the realistic first step could be to apply varying obligations by area. In this connection one could, among other things indicate Lithuania, Poland and Italy from 2019 and the case of Sweden from February 2020, but the last specified analysis was, however, withdrawn by PTS in Sweden.

451. The examples appear to demonstrate that recently, the most suitable geographic units were administrative boundaries, such as municipalities or postcodes, rather than telephone exchange areas of the operator with significant market power as used to be the most common unit.

452. Furthermore, that the most common criteria for choosing potential competition areas were on the one hand specific minimum deployment of networks by a specific number of competitors of the operator significant market power and on the other hand that the market

share of the operator significant market power had fallen below a specific level, which was generally 40% or 50%.

5.7 Arguments for more detailed geographic analysis of the relevant markets

453. In the light of the increased importance of geographic analysis of the relevant markets in Europe in recent years; of the increased deployment of fibre-optic networks by Mila and the company's competitors in the Capital City Area and widely in the country since the previous market analysis was made in 2014; of the increased market share of Mila competitors on the relevant wholesale markets in recent years and the changing Siminn market share on the related retail market by area; the PTA considers that the time has come to make a more detailed geographic analysis of the markets in question than has previously been done. From the review of precedents from the PTA's sister administrations in Europe it is clear that the emphases of many of these administrations and of the EU Commission and ESA have recently tended towards more detailed geographic analysis than was previously practised.

6 Geographic analysis of wholesale market for local access with fixed connection (Market 3a)

6.1 General

454. As has been stated here above a geographic market covers a geographic area where stakeholder companies participate in supply and/or demand of the relevant goods or services where conditions for competition are the same or sufficiently homogeneous and where it is possible to differentiate the geographic area from neighbouring areas where conditions for competition are appreciably different. In other words, a market should be defined as the area where the product in question is offered to customers, where there are similar and sufficiently homogeneous competitive conditions. It is therefore not necessary that competitive conditions are precisely the same in the various areas. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are “genuinely different” that cannot be considered to jointly constitute the same geographic market.

455. *Real* competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications companies, for example in their pricing and service offer, and the impact of this behaviour on the structure of the market, for example market shares and network deployment. In order to be able to analyse a separate geographic market there must therefore be convincing indications, relating both to the structure of the relevant market and to the behaviour of parties to the market, that competitive conditions vary considerably from those in other areas within the state in question. Competitive conditions can vary between regions if competitors of the party with market dominance can exert significant competitive pressure in a specific region or regions which does not exist in another area or areas. The task then is to determine whether within a specific state, there is adequate homogeneity between regions (single geographical market) on the one hand or on the other hand appreciably different market conditions (segmented geographic markets or varying obligations by region).

456. As has been detailed here above there is the possibility of imposing varying obligations by region on electronic communications companies that have been designated as having significant market power, in order to react to the varying competitive conditions between regions should there not be grounds for dividing a specific service market into more than one geographic market. So less is needed for it to be possible to prescribe varying obligations than is the case with respect to the geographic delineation of markets.

457. The process of analysing a geographic market is according to the above-mentioned ESA Guidelines, the same as that which applies to the definition of product and service markets, among other things with respect to evaluation of demand and supply substitutability between regions. Homogeneity of competitive conditions is then examined, among other things, taking into account the distribution of new electronic communications networks, pricing and service characteristics. To prevent a huge number of small markets it could be useful to aggregate areas where comparable competitive conditions exist, into one geographic area.

458. In geographic definition of markets, it is also necessary to take expected future developments into account, among other things with respect to distribution of networks and market shares.

459. In Section 5 here above, it has furthermore been stated that the starting point of geographic analysis should generally involve an examination of competitive conditions on related retail markets if obligations were not in place on the relevant wholesale market (modified greenfield approach).

6.2 The PTA Decision no. 21/2014 with respect to wholesale market for local loops

460. In the last PTA decision on the market in question, see PTA Decision no. 21/2014, the Administration came to the conclusion, subsequent to a rather basic pre-examination, that the geographic market was the whole country, i.e., that there was no reason to segment the geographic market or to apply varying obligations by region. Competition conditions were not sufficiently heterogeneous between individual regions to justify dividing the country into regional markets and in addition to this, the boundaries in distribution of access networks provided at a fixed location were unclear. In addition to having a dominant position in those areas where there was little or no competition, Mila, in the opinion of the PTA, still had a very strong position in those areas where another network was also on offer. It was thus clear that Mila would be designated as an undertaking with significant market power on all the geographic markets that it was possible to define. The PTA stated that this was in accordance with the conclusions of 28 states of 31 in the EEA for the market in question. Only the United Kingdom, Finland and Hungary had segmented the market in question by geographic area, and that had been for historical reasons, as has been explained in Section 5 here above, and in Appendix A-1.⁹² ESA raised no objections to the above specified intention of the Administration regarding geographic definition of markets.

461. In the decision in question, it was among other things stated that in Iceland, the Mila copper local loop network covers almost the whole country, while other access networks were local and much smaller than the Mila network. Wholesale access to the Mila copper local loop network was offered throughout the country at the same price. Companies at various locations in the country purchased the service and their competitive position was in all instances similar. Rules on universal services also required that such connections should be on offer for all citizens. The GR fibre-optic network was on the other hand limited to Reykjavík and surrounding areas, but also to a certain extent to South and West Iceland, while networks of other network operators have much more limited distribution. Two of the smaller network operators, that is to say, Snerpa and Tengir were related to utility companies in the relevant regions and did not plan to offer services outside the areas that they now served. The same could be said for those municipalities that had built local fibre-optic networks in their area. This could mean, strictly speaking, that assessment of supply substitutability indicated that this was an instance of multiple geographic markets. The fact that the Mila network covers the whole country contradicted however such a conclusion, not least as the company also had a very strong position in areas of competition. It was not foreseeable that this position would weaken significantly during the lifetime of the analysis.

⁹² As stated in Section 5.6.2 here above, Italy and Poland joined the states that had segmented geographic markets on Market 3a during 2019, which means that there are now five states that have taken this route on the relevant market, of which four are in the EEA, after the United Kingdom left the EU and thus the EEA.

462. The jurisdiction of Act no. 81/2003 on electronic communications was the whole country and authorisation for companies to operate networks provided at a fixed location covered the whole country and was based in all instances on the same laws and regulations.

463. It was necessary to take into account substitutability of the access networks that were on offer across the whole country, e.g., by using the SSNIP test. It would be fair to say that it was very unlikely that a sufficient number of consumers would decide to move to a new house to another market area because of a 5-10% price increase. It was also unlikely that other network operators would embark on establishing their own network subsequent to such a price rise. The SSNIP test could thus lead to many and small markets and would thus neither be realistic nor useful in the circumstances that pertained on the relevant market in this country. It was therefore necessary to emphasise competitive conditions and to investigate whether they were sufficiently homogeneous over the whole country for it to be considered one and the same geographic market.

464. On the other hand, it was a fact that clear and stable boundaries can usually not be found between the geographic areas in question on the relevant market in this country. The distribution of new access networks is unpredictable and seems to be random in some instances. To this it can be added that some network operators in this country, such as GR and Tengir planned for further distribution of their networks, at least within their defined area of operations and for this reason it would be difficult to find boundaries that were stable during the coming years.

465. It was also a fact that the distribution of new access networks did not seem to follow any particular pattern if one looked at the country as a whole. For example, the situation was not that only the most densely populated areas were connected to the new network systems and the others not. Individual municipalities have recently taken the initiative of developing or funding fibre-optic networks in their areas. Also, the boundaries were still unclear within specific municipalities. For example, new access networks have not been deployed everywhere in built-up areas in the Capital City Area except to a small degree, for example in Hafnarfjörður, Garðabær, Kópavogur and Mosfellsbær. The same could be said for certain districts in Reykjavík. One could even find varying competitive conditions within the same municipality. As an example, one could mention that competitive conditions could vary within different districts in Reykjavík and even between neighbouring streets. In March 2014, GR had however completed deployment of a fibre-optic network to 95% of homes in Reykjavík and was expected to complete this development in 2015. The development by GR had for example partly been in step with maintenance and renewal of other kinds of conduits in the company's service area, for example for water or electricity. It would therefore be very difficult to draw a clear line between areas on the basis of varying competitive conditions because even within areas where fibre-optic was on offer, conditions can vary, which would mean that the areas that needed to be delineated would need to be very many, small and variable, which would have involved an excessive burden on the regulatory authority and on the electronic communications companies with respect to collection of data, processing of data and research of the market environment in the many areas. In addition to this, the conclusion of the market analysis would in all likelihood have been the same in all areas because of the previously mentioned dominant position of Mila in all areas.

466. Almost all citizens were connected to an access network provided at a fixed location. The vast majority were connected through copper local loops but in many locations, fibre-optic local loops were also on offer and in addition to this, in the newest districts only fibre-optic local loops had been deployed. The distribution of local loops does thus not support the

argument that the country should be divided into more than one geographic market. One can also point out that the few households that are not connected to any local loop are not bound to a specific area, but they are normally located at what are called fringe areas in the countryside that suffered from a market failure. The Telecommunications Fund had been founded in 2005 and had the role of connecting people living in such places. Households that could connect to the copper local loop were thus spread widely across the country.

467. Mila had a copper local loop network covering virtually the whole country and the obligation to provide wholesale access was not restricted to specific regions. Mila offered local loop access in wholesale at the same price across the country pursuant to obligations to this effect that were imposed on the company with the PTA Decision no. 26/2007 on the market that was then Market 11.

468. The PTA believed that the market's pricing of the service in question strongly indicated that this was an instance of a single geographic market for access to network infrastructure provided at a fixed location in this country. There was nothing to indicate that other network operators offered prices that varied by region and nor that they varied significantly from the Mila prices on the local loop market.

469. Finally, it was stated in the above specified PTA Decision no. 21/2014 that difference in quality was another factor, where it needed to be examined whether this had an impact on geographic segmentation of the market. The PTA believed that there was no significant difference in the quality of services by area as the competitive conditions were not variable by area in the opinion of the PTA.

6.3 Deployment of networks, deployment plans and network topology

470. As previously stated, the Mila copper network covers almost the whole country, i.e., to almost all households and companies in the country, after having been developed throughout the century long history of the country's state operated telephone system. Subsequent to the monopoly being lifted, the copper network was also improved and renewed to be able to meet increased demand for data transfer, in the first instance because of dial-up connection modems and then after that for ADSL and VDSL. It was true that in recent years, Mila has only deployed fibre-optic local loops to new buildings and not copper local loops, and in addition to this Mila had to a small degree, decommissioned copper local loops were fibre-optic local loops were available in spaces. At the end of 2020, the situation was that the Mila copper network reached 140,496 spaces (homes and companies) of 163,209 (of which 139,343 were homes and 23,866 were companies), which represents 86.1% of spaces in the country. In the autumn of 2020, Mila announced plans to decommission the company's copper system in phases over the coming 10 years.

471. Fibre-optic networks have achieved significant distribution during what must be considered a period of relatively few years. There was a total of 83% of homes and companies with access to a fibre-optic network at the end of 2020, thereof to 87% of homes and 63% of companies. Because of uncertainty about differentiation between the market for residences and the corporate market, i.e., for companies that do not need high quality connections and of information about the number of buildings and spaces where companies are operating, exact figures are not available on the proportion of companies with access to a fibre-optic networks.

472. Copper local loops in use have decreased significantly in recent years. They were about 114,000 at the end of 2016 and were about 58,000 at the end of 2020. At the end of 2020, fibre-optic local loops in use with Mila were about [...]. There was a total of 90,500 Mila copper and fibre-optic local loops in use at the end of 2020, of about 159,000 local loops in use. A large majority of Mila local loops in use are thus still copper local loops, or [...], though the difference is shrinking rather quickly.

473. In Mila reply, dated 22 September 2020, to a query from the PTA dated 7 September 2020, the company presented a plan for copper decommissioning over the next 10 years. Shortly later, Mila announced this plan to electronic communications companies. It was stated that the plan was still subject to a number of imponderables and that Mila had not been able to predict the number of connected copper local loops in the next years. The plan was divided into three main phases, i.e., over the next five years these would be locations where fibre-optic rollout had commenced, was well developed or completed. This applies to all of the Icelandic rural areas (Iceland Optical Connected), the Capital City Area and to all urban kernels to which the above description applies. During the following 5-7 years, there would be locations where fibre-optic rollout had commenced and where there were clear plans in place. This applied to very many urban areas outside the Capital City Area. In the coming 7-10 years such locations would be urban areas where fibre-optic rollout was very limited today, new buildings would be connected to fibre-optic but where there would be no clear plan yet elaborated. It was then stated that this phasing of the task was presented with reservations and would take into account progress in fibre-optic and 5G rollout in this country.

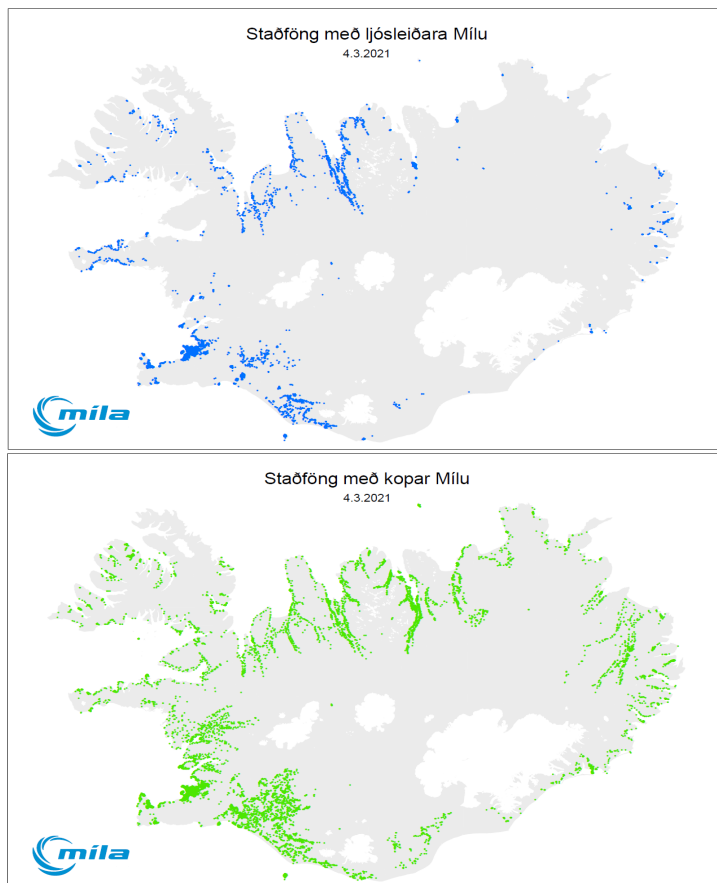
474. In recent years, Mila has developed an extensive access network using PON fibre-optic topology and has assured access for itself to the fibre-optic networks operated by other parties, where the company installs GPON equipment for active access service. Mila has also been purchasing or leasing long-term the various local fibre-optic networks in the countryside that have been developed during recent years with financial contributions from the Telecommunications Fund, and also in urban areas such as Gagnaveita Skagafjarðar, which among other things developed a fibre-optic network at Sauðárkrókur. It is not unlikely that such purchases by Mila will continue during the lifetime of this analysis.⁹³ Mila has

⁹³ The PTA has information to the effect that Mila has deployed with state aid or purchased partly or entirely 16 specified local networks that will be shown here below. The connections in question are about 1,600 of totals of more than 6,000 fibre-optic connections in rural Iceland that have been deployed or will have been deployed when the Iceland Digital Connected project completes in 2022 or 2023. The projects are in areas where the market has failed and most have received a grant from the state or municipality in one way or another in order to level living conditions between these areas and urban areas. Mila has assisted municipalities that have so requested, in this venture, both with advice and access to ducts or Mila trunk line fibre-optic. Mila has also served many, small local networks with bitstream service where other parties have not felt themselves able to provide service. The networks in question are: Akrahreppur, Akraneskaupstaður (rural), Blönduósbær (rural), Borgarfjarðarhreppur, Fjarðabyggð, Grímsnes- and Grafningshreppur, Grundarfjarðarhreppur, Húnaþing vestra, Mosfellsbær (rural), Rangárþing Eystra, Reykjavík (rural), Skaftárhreppur, Skagabyggð, Skagafjörður, Snæfellsbær and Sveitarfélagið Skagaströnd (rural). In the following additional 7 local networks, there is mixed ownership of local loops or Mila leases the local loop system, either long-term or manages operation of the system: Strandabyggð, Súðavíkurhreppur, Svalbarðshreppur and rural Langanesbyggð, Vesturbyggð, Vogar (rural), Vopnafjörður and Grindavík (rural). This is a total of 23 countryside networks that Mila has either deployed, purchased or assured long-term control. In addition to this, Mila provides GPON service and collects the local loop charge for the owner of the network for the below specified 18 local networks: Ásaljós, Fjarskiptafélag Skeiða- and Gnúpverjahrepps, Rangárljós, Húnanet, Orkuþjónustufélagið, Ljósfesti, Hrunaljós, Dalaveitur, Vopnafjarðarljós, Snerpa, Leiðarljós, Flóaljós, GR (Árborg and Borgarbyggð), Fjarðabyggð (part of the network), Bláskógaljós, Hrafnshóll, Ljósleiðari Borgarbyggðar and Skaftárljós. Finally, Mila provides GPON service through 10 local networks but does not collect the local loop charge for the owners of the networks in question. They are: Tengir, Eyja- and

furthermore in some instances, deployed such networks in rural areas with state aid. Mila furthermore provided GPON service on almost all other local fibre-optic networks in the country (except the GR network, apart from a very few connections in part of Árborg and Borgarbyggð). Mila therefore operates in most of the country's municipalities in the field of access through fibre-optic.

475. Mila fibre-optic local loops reached at least 77,000 homes and companies at end of 2020, of 163,209 homes and companies in the country, where about 159,000 of them were connected to a local loop. Of these 77,000 Mila fibre-optic local loops, about 64,000 were in the Capital City Area. Mila distribution of fibre-optic networks has thus reached about 47.2% at a national level, and 64% in the Capital City Area. Mila expects vigorous fibre-optic deployment to continue during the coming years. Given Mila distribution plans, it is clear that this proportional distribution will significantly increase throughout the lifetime of the analysis. Here below in figure 6.1, one can see the distribution of the company's copper and fibre-optic local loops.

Figure 6.1 Distribution of Mila access networks in fibre-optic and copper



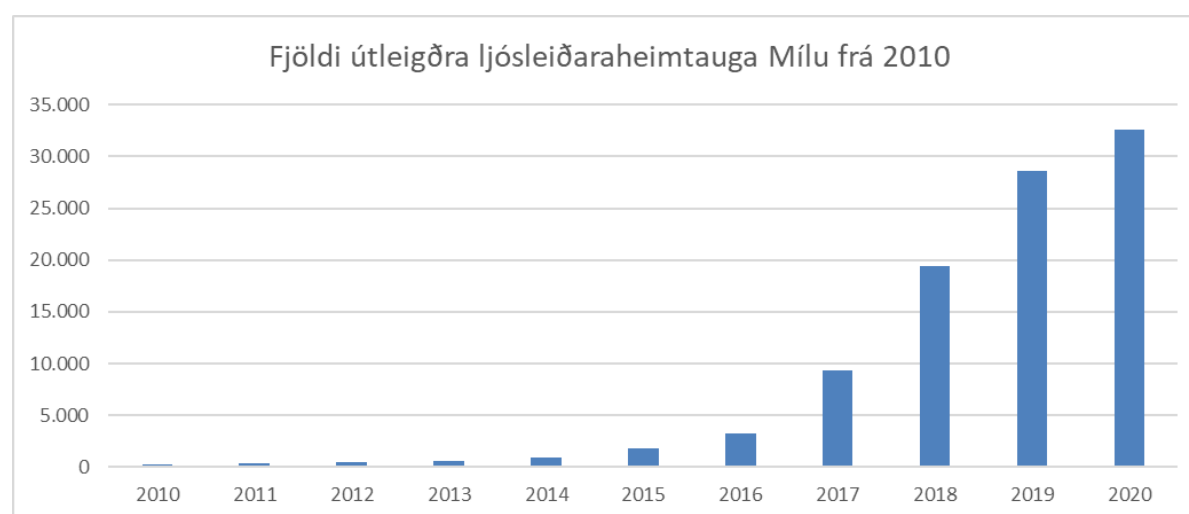
Source: Mila.

Miklaholtshreppur, Helgafellssveit, Fjarlskipatafélag Reykhólahrepps, Hitaveita Drangsness, Ljóspunktur, Fjarðabyggð, Gagnaveita Hornafjarðar, Hótel Laki and Hvalfjarðarsveit. This is a total of 51 local networks that Mila owns, leases, is involved in some way in operating or on which it provides bitstream service. The PTA assumes that this development will continue to some extent during the lifetime of this market analysis, such that more local networks will become the property of Mila or that the company will lease them or deploy them with state aid.

476. From the above it is clear that copper connections in use with Mila have been on the decline in recent years, but the company's fibre-optic connections have increased significantly over the same period, as has deployment of the company's fibre-optic. One can expect continued development in this direction during the lifetime of the analysis. The above specified plan for decommissioning of the Mila copper system is very general and broad, and in addition to this, it is presented with reservations. The PTA considers that Mila will during the lifetime of the analysis, continue to have a local loop network with almost national coverage, which comprises a network of both copper and fibre-optic. The PTA expects that during the life of the analysis, Mila will first and foremost close copper connections where the company has already connected with fibre-optic or ensured long-term control over fibre-optic local loops. If Mila does not own or have long-term control over fibre-optic local loops at any locations at the end of the lifetime of the analysis, this will, in the opinion of the PTA, be first and foremost in sparsely populated rural areas that will not have an impact on the overall conclusion of this analysis.

477. In the following figure one can see growth in leased fibre-optic local loops owned by Mila, but the organised Mila fibre-optic rollout did not get under way until 2016. Mila has however deployed fibre-optic local loops in new build areas and to companies for a longer period of time. As can be seen in the figure, there is significant growth in Mila leased fibre-optic local loops in recent years.

Figure 6.2 – Number of Mila's fibre-optic local loops in use 2010-2020

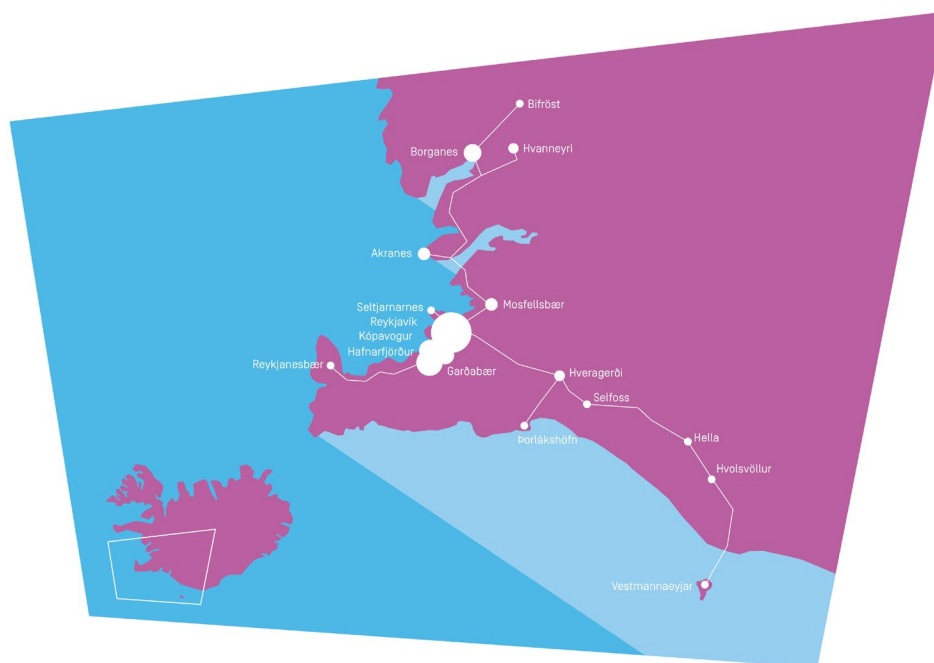


Source: Post and Telecom Administration.

478. Gagnaveita Reykjavíkur (GR) has a history stretching back more than a decade and operates first and foremost in the utility territory of Orkuveita Reykjavíkur, and one could say that the company operates from Bifröst, Borgarnes and Akranes in West Iceland and east to Hvolsvöllur in South Iceland and in Reykjanesbær. GR says that the company's operational territory is the whole country, but it is clear that the company's operational territory today is only the south-west corner of the country. The PTA does not expect that this will change in the lifetime of the analysis, except possibly on Market 3b, if the company agrees on access to dark fibre and to networks of parties like Tengir and/or other local fibre-optic networks, over which to provide the company's bitstream service. GR only provides access on Market 3b to its network and not on Market 3a as well, as Tengir does in North Iceland. At the end of 2020, the GR

fibre-optic system reached more than 109,000 households and companies of about 163,000 homes and companies in the country. GR fibre-optic distribution was therefore about 67% at national level at end of year 2020. In its plans, GR projects that the company's fibre-optic network will reach about [...] households and companies at the end of at the end of 2023 on Market 3a, and up to [...] homes and companies on Market 3b at the same time, if the company makes an agreement on local loop access with parties such as Tengir and countryside networks, but in the opinion of the PTA, it is uncertain whether this will happen. The company's distribution plans are therefore rather modest during the lifetime of the analysis, given development of recent years and the Mila distribution plans for the same period.

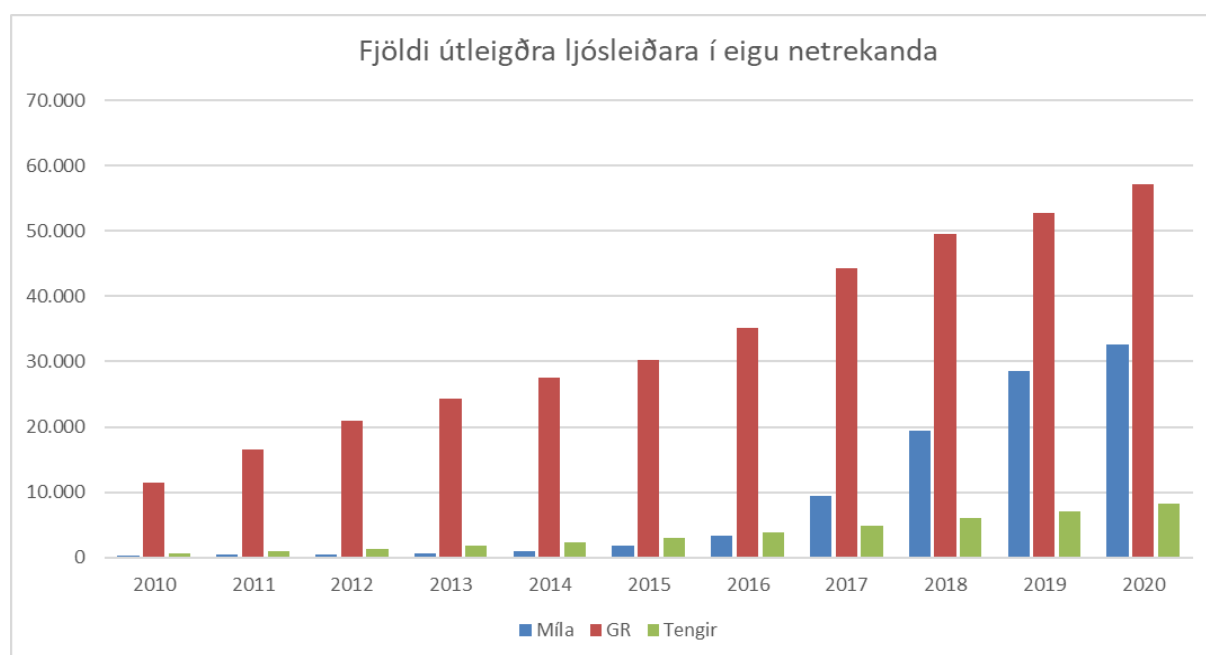
Figure 6.2 Gagnaveita Reykjavíkur area of coverage



Source: Gagnaveita Reykjavíkur

479. The following figure shows the number of fibre-optic local loops owned by network operators up to the end of 2020, and how the GR fibre-optic rollout has been taking place over a much more extended period of time than the Mila fibre-optic rollout. At the end of 2020, GR fibre-optic local loops GR in use were about 57,000. As can be seen in the specified figure below, the increase in GR fibre-optic local loops has slowed down significantly since the beginning of 2018. The number of leased fibre-optic connections of Snerpa and Austurljós is so small that it is not visible in this comparison, which is why the Snerpa and Austurljós fibre-optic connections are not included in the figure. As can be seen in the figure, Mila is making rapid progress with regards to the number of fibre-optic local loops in use.

Figure 6.3 – Number of fibre-optic local loops in use by network operators 2010 - 2020

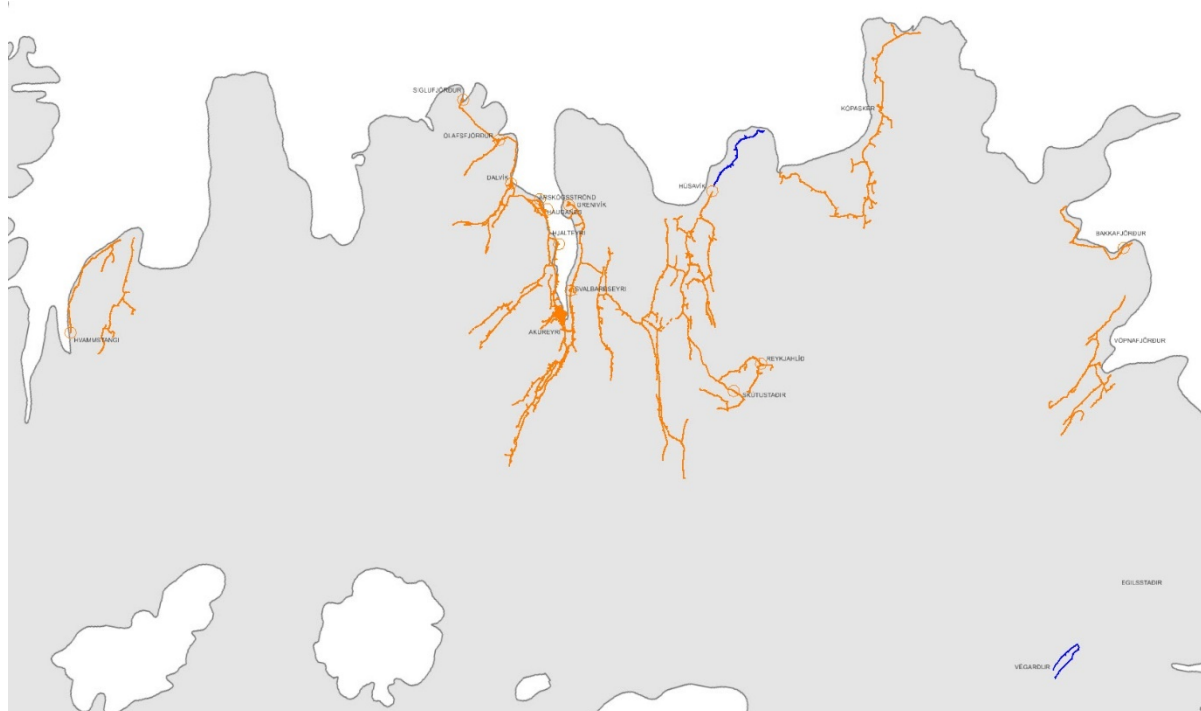


Source: Post and Telecom Administration.

480. Tengir operates in the Eyjafjörður area, Akureyri and neighbouring municipalities, but also in the eastern part of North Iceland to Tjörneshreppur and in Þingeyjarsveit, Bakkafjörður og Vopnafjörður and the company operates a small network in Húnþing vestra. The company also operates bitstream equipment in the countryside network of Fljótsdalshreppur in East Iceland. In the Tengir operational territory, that company, unlike GR, offers access on both Markets 3a and 3b.

481. The Tengir network reached 10,000 households and companies at end of year 2020, about 6% of homes and companies in this country, and the company expects to increase its coverage, such that this network will reach about [...] spaces at the end of 2023. These distribution plans are also rather modest given the Míla distribution plans, i.e., approximately [...] % of total spaces in the country. The GR and Tengir fibre-optic networks, thus reached about 73% of total spaces in the country at the end of 2020, and it is expected that this proportion will increase by a few percentage points during the lifetime of the analysis such that it will reach almost [...] % at the end of 2023, including the networks of Snerpa and Austurljós, and given that the annual increase in spaces at a national level will be 3,000 per annum.

Figure 6.3 Tengir area of coverage



Source: Tengir.

482. At end of year 2020 Snerpa had deployed fibre-optic to just under 1,200 spaces in the West Fjords, first and foremost in the Ísafjarðarbær municipality, which includes Ísafjörður, Hnífsdalur, Suðureyri, Þingeyri and Flateyri, and Snerpa has also deployed networks in Bolungarvíkurkaupstaður, Tálknafjarðarhreppur, Súðavíkurhreppur and in Vesturbyggð (Bíldudalur), which represents about 0.5% on a national level and 42% of spaces that can be connected in the company's operational territory. The company expects distribution to reach [...] spaces at the end of 2023, which represents [...] % of the total or about [...] % of spaces in the company's operational area.

483. At end of year 2020 Austurljós had deployed fibre-optic to about 200-300 spaces at Egilsstaðir in East Iceland where about 60 customers have active connections. This company's plans for further deployment are modest for the coming years and this will be decided by demand. The Austurljós market share is thus negligible. At the beginning of 2021, Austurljós commenced operating its own bitstream service and Internet service in retail. The company intends to grow by about [...] customers per annum with this offer. It should be noted that Mila has also deployed fibre-optic at Egilsstaðir, to just over 600 spaces in the autumn of 2020, and the company is further expanding its fibre-optic network at that location in 2021.

484. Kapalvæðing operates a cable system in Reykjanesbær which reaches just under 4,000 spaces in that town, but the usage of this system is less than [...] %. In Section 4 here above, the PTA came to the conclusion that the cable system did not belong to the relevant wholesale market. In addition to this, the company does not offer local loop access to the system, as no electronic communications company has shown interest in such access, and this access is technically challenging. The PTA considers that the cable system in question has no impact on Market 3a, as the company's market share is negligible at national level and not significant in

the municipality in question. It is worthy of note that Kapalvæðing made an agreement on bitstream access to the GR fibre-optic network in 2020.

485. Tens of small networks have been deployed in the countryside, widely across Iceland with state aid, first and foremost through the Iceland Optical Connected project operated by the Telecommunications Fund⁹⁴, and/or with funding from municipalities and/or from the residents themselves. The project is one of the key tasks in government's regional planning where the objective is to deploy fibre-optic networks in market failure territories in rural areas across the whole country. In addition to the grants from the Telecommunications Fund, municipalities have also had the option of applying for a regional development grant on the basis of the government's regional planning. Though the vast majority of projects have been funded partly with grants from the Telecommunications Fund, there are a number of examples of such development in rural areas that municipalities and/or local residents have embarked on without such public funding. In April 2021 there were 69 municipalities in the country, whereas in the middle of the 20th century they were at most 229. From and including the 9th decade of the last century, emphasis was placed on merging municipalities in order to increase efficiency in their operations and improve service.

Figure 6.4 Overview of municipalities and the boundaries



Source: The PTA.

⁹⁴ The Telecommunications Fund has the role of supporting the development of electronic communications on the basis of government's electronic communications plan, and the fund is under the auspices of the Ministry of Transport and Local Government. It is the clear policy of the Icelandic authorities that all of the country's households and companies shall have the option of a fibre-optic connection. The purpose is to improve living conditions and increase citizens' opportunities for job creation across the whole country. The objective is that 99.9% of residences and companies will have the option of a 100 Mb/s Internet connection by the end of 2021. The fund formally commenced operations in the beginning of 2006 on the basis of an Act passed in the Althingi at the end of 2005, subject to the sale of the state holding in Siminn hf. The main task of the Fund from the outset was to provide funding for projects that aim to develop electronic communications networks, projects that enhance the nation's security and competitiveness in the field of telecommunications and other tasks, and they are prescribed in the electronic communications plan, and it is assumed that they would not be tackled on a strictly commercial basis.

486. Early in 2020 a draft bill for amendments to legislation on local authorities was published for consultation in the government's consultation portal, and this bill had provisions on minimum number of inhabitants in municipalities. The bill was part of a parliamentary opinion on policy-making plan for issues related to municipalities for the years 2019-2033, and an action plan for the years 2019-2023 which was endorsed by the Althingi on 29 January 2020. On 30 November 2020, the bill was put to the Althingi, and the first reading took place on 26 January 2021 and was finally referred to the committee for the environment and transport on the same day.

487. In Article 1 of the bill, it was stated that the Minister should take the initiative in merging municipalities if the number of inhabitants of the municipality had been lower than 1000 for three consecutive years. It would be possible to grant a temporary exemption for up to four years in specific circumstances. In the temporary provision, it was stated that despite the above, a municipality that had fewer than 250 inhabitants would not be obliged to merge with another or other municipalities prior to general local government elections in 2022 and a municipality that had fewer than 1000 inhabitants not prior to general local government elections in 2026. It was then stated in paragraph 2 of Article 12 of the bill, that the Minister would not take the initiative in merging municipalities where the number of inhabitants was below the minimum level during the election years in question prior to two years after the elections in question had taken place, i.e., the years 2024 and 2026. The bill did not constitute a deviation from the fundamental policy stated in local government legislation that the power to decide and structure the organisation of municipalities is in the hands of their inhabitants, but rather that a condition is made that for such a decision to be made by inhabitants there must be a minimum number of inhabitants in the municipality in question.

488. In the preamble to the bill, expectations were expressed that the material import of the bill will encourage municipalities to commence a debate on which units would form the strongest administrative units in each individual region, of which one can observe indications. The bill thus constituted an opportunity for regions to initiate cooperation on a more democratic basis than before to protect communal interests, strengthen public administration and increase the level of service. It was therefore hoped that it would prove to be an absolute exception if the Minister needed to take the initiative in the merging of municipalities. It was then stated that subsequent to local government elections in 2022 municipalities could decrease in number by at least 14, i.e., from 69 to 55 and by approximately 40 subsequent to the elections in 2026 when they would then be 30.

489. The law was passed by the Althingi on 13 June 2021, but in a considerably changed form compared to the bill. The Minister's duty of initiative in merging municipalities was abandoned and instead it was stipulated that the aim should be for the minimum population of a municipality not to be less than 1,000. If the population were below this criterion in a general municipal election, the local government in question should, within one year of the municipal election, seek to achieve the minimum number of inhabitants by initiating formal merger negotiations or drawing up an opinion on the municipality's status and the possibilities of merging the municipality with another or other municipalities.

490. The number of municipalities in this country may decrease somewhat in the future, but in the opinion of the PTA it is unlikely that this will happen to a significant extent during the lifetime of this analysis.

491. Apart from the above legislative changes, exploratory discussions on merging of municipalities are taking place widely across the country, and there is also the fact that

municipalities in East Iceland merged in 2020 into a unit called Múlaþing, i.e., the former municipalities of Fljótsdalshérað, Djúpavíkurbhreppur, Borgarfjarðarhreppur and Seyðisfjarðarkaupstaður. With this, municipalities decreased in number from 72 to 69. On 5 June 2021, a general election was held to merge the municipalities of Skútustaðahreppur and Þingeyjarsveit in Northeast Iceland and the merger was approved by the residents of the said municipalities. Next a special board will be appointed to prepare the establishment of the merged municipality and therefore chooses a name for the merged municipality. A formal merger is expected to take place in 2022. The country's municipalities will therefore be 68 in 2022. On the same day, the residents of the municipalities of Skagabyggð, Skagatrönd, Blönduósþær and Húnavatnshreppur in the Northwest Iceland rejected plan of merging the municipalities. In the opinion of the PTA, it is difficult for the PTA to predict what the number of municipalities will be in the country at the end of the period of validity of this analysis, but the PTA does not expect a significant drop in the numbers during this period, whatever may subsequently transpire.

492. The project, Iceland Optical Connected, began formally in the spring of 2016 and the original plan was for the final allocation from the fund to be made in the year 2020, with the objective that all interested municipalities would complete deployment of fibre-optic in the rural areas by the end of the year 2021 at the latest. In a press release on the Ministry website on 22 March 2020 it was stated that it was expected that when the project had run its course it would have reached 5,850-6,000 locations across the country that were eligible for funding. In a news release on the web page in question on 3 February 2021, it was stated that the objective of the authorities was that the involvement of the State in funding the project for fibre-optic rollout to rural Iceland in market failure areas, Iceland Optical Connected, would end in 2021. According to the most recent information held by the PTA, it is not likely that civil works on the last connections related to the project will complete before 2022 or even 2023, particularly in wide-reaching municipalities such as Múlaþing and Borgarbyggð. The project was an integral part of government policy for fibre-optic rollout to the whole country by the end of 2025.

493. The first year of funding was for the year 2016, when 14 municipalities received funding for fibre-optic deployment in rural areas, for a total of ISK 450,000,000 where the grant for each municipality was in the range of ISK 4,600,000 to ISK 118,000,000. They were the following municipalities:

- Blönduósþær
- Borgarbyggð
- Eyja- og Miklaholtshreppur
- Fljótsdalshérað (now part of Múlaþing)
- Húnavatnshreppur
- Húnaþing vestra
- Kjósarhreppur
- Norðurþing
- Rangárþing Eystra
- Rangárþing Ytra

- Súðavíkurbær
- Svalbarðshreppur
- Sveitarfélagið Skagafjörður
- Þingeyjarsveit

494. For the year 2017, grants totalling ISK 450,000,000 were also made to 24 municipalities, ranging from ISK 1,500,000 to ISK 53,500,000 per municipality. The municipalities Borgarbyggð, Fljótshálsa, Kjósarhreppur, Rangárþing Eystra, Rangárþing Ytra, Sveitarfélagið Skagafjörður og Þingeyjarsveit received additional grants and 17 new municipalities received grants. They were:

- Akraneskaupstaður
- Breiðdalshreppur (now part of Fjarðabyggð)
- Dalabyggð
- Djúpvogshreppur (now part of Múlaþing)
- Fjarðabyggð
- Grindavíkurbær
- Grundarfjarðarbær
- Hrunamannahreppur
- Langesbyggð
- Reykhólahreppur
- Skaftárhreppur
- Skorradalshreppur
- Snæfellsbær
- Strandabyggð
- Sveitarfélagið Hornafjörður
- Sveitarfélagið Skagatrönd
- Vopnafjarðarhreppur

495. For the year 2018, grants totalling ISK 450,000,000 were also made to 24 municipalities, ranging from ISK 1,400,000 to ISK 74,100,000 per municipality. In that allocation, 13 municipalities that had previously received grants, received an additional grant and in addition there were 11 new municipalities that received grants. They were:

- Bláskógabyggð
- Borgarfjarðarhreppur (now part of Múlaþing)
- Fjallabyggð
- Flóahreppur
- Grímsnes- and Grafningshreppur

- Ísafjarðarbær
- Kaldrananeshreppur
- Seyðisfjarðarkaupstaður (now part of Múlaþing)
- Sveitarfélagið Árborg
- Sveitarfélagið Vogar
- Vesturbyggð

496. In the year 2018, ISK 450,000,000 was again granted to 24 municipalities for projects that were to be implemented in the year 2019. The grants ranged from ISK 2,800,000 to ISK 165,800,000. In that allocation, 17 municipalities that had previously received grants, received an additional grant and in addition there were new municipalities that received grants. They were:

- Bolungarvíkurkaupstaður
- Tálknafjarðarhreppur

497. On 22 March 2019, the government signed an agreement with 23 municipalities. In a press release on the Ministry's website that same day it was stated that the agreements offered 23 municipalities a total of ISK 1,475,000,000 during the years 2019-2021 in this phase of the project for the purpose of connecting up to 1,700 locations eligible for grants in addition to a great number of other buildings at the same time that do not receive grant. Municipalities' and residents' own contribution was significant, a minimum of ISK 500,000 for each connected location that was eligible for a grant. The grants aimed at ensuring project completion for most municipalities in question and thus mostly achieving the government's objective of connecting the country's rural areas with fibre-optic. The aim was to make the final allocation at the end of 2020, with the objective that all interested municipalities should complete deployment of fibre-optic in rural areas by the end of 2021 at the latest.

498. Grant amounts in this last phase were from ISK 3,200,000, up to ISK 527,000,000 (Borgarbyggð). Of these 23 municipalities in the last phase, only two were new, i.e.:

- Mosfellsbær
- The City of Reykjavík

499. On 12 June 2020, the awarding of grants to the amount of ISK 443,000,000 was announced for fibre-optic rollout in rural areas, of which ISK 317,500,000 was for municipalities, and Neyðarlínan received a grant of ISK 125,500,000 to deploy fibre-optic and develop electronic communications infrastructure outside market areas. Agreements were made on allocations from the Telecommunications Fund with 17 municipalities, and 8 of those also received regional grants from the government's regional plan. Three municipalities receive grants that had not previously received any allocations, i.e.:

- Árneshreppur
- Grýtubakkahreppur
- Vestmannaeyjabær

500. In a press release on the Ministry's web page, dated 12 March 2021, it was stated that 13 municipalities had the opportunity of applying for a grant for the final phase of Iceland Optical Connected, for a total amount of ISK 180,000,000. There one can find three municipalities that had not previously received grants i.e.:

- Reykjanesbær
- Suðurnesjabær
- Akureyrarbær (for a trunk line to Hrísey)

501. This means that 48 of 69 municipalities in this country have received funding from the Telecommunications Fund project Iceland Optical Connected, and there are 3 that may be in addition to this. What these grants have in common is that they are connections in rural areas, often farms, where the cable routes are generally long and costs high for connecting the locations in question to fibre-optic. It could therefore not be expected that connecting such locations with fibre-optic would be market-driven. There is wide variation between municipalities that received grants in the proportion of total locations within the municipality that were eligible for grants. This proportion is often low, particularly in locations that include urban clusters and villages that are not eligible for grants and that have in most instances, access to VDSL connections.

502. According to the above, the Telecommunications Fund and the government have allocated just under ISK 4 billion during the 6-year period in question (2016-2021) for the purpose of connecting more than 6,000 eligible locations in the most rural areas. The average grant for each eligible location is thus about ISK 650,000. Municipalities and/or residents have then provided the difference.

503. In a press release on the Ministry's website, dated 14 May 2021, a detailed analysis of the project was published, entitled "Iceland Optical Connected – The social impact of the project."

504. Of these, more than 6,000 state aided countryside connections that the intention is to be available when the project Iceland Optical Connected completes in 2022 or 2023, Mila has now ensured ownership or long-term control over at least 1,600 of them and the PTA expects that Mila will increase its share of these connections during the period of validity of the analysis. According to the PTA data for end of year 2020, there only appears to be active connections on something under 3,000 of the spaces up to this point in time. This means that the number of connectable spaces owned by parties other than Mila is about 125,000 at the end of 2020, which is about 76-77% of connectable spaces. So there remained about 38,000 spaces at the end of 2020 which fibre-optic networks of parties other than Mila do not reach. One can expect the spaces to have become just under 140,000 at the end of 2023, but because of a natural increase in the number of spaces during the period, the total number is then expected to be about 172,000⁹⁵, which makes just over 80% coverage of fibre-optic networks other than that of Mila at the end of 2023. When the Mila fibre-optic network is taken into the equation, fibre-optic

⁹⁵ The PTA expects that connectable spaces in the country, will increase by 3,000 per annum until the end of 2023, and this tallies with projections of parties to the market like Mila and GR.

networks reached about 83% of spaces in the country at the end of 2020 and the PTA expects this proportion to be around or in excess of 90% at the end of the lifetime of the analysis.

505. The requirement in common for local networks that have received state aid is that they provide open access to their networks on Market 3a and/or Market 3b, and that access prices to the networks shall be based on benchmarking. It is therefore clear that such networks bear various obligations that do not rest on parties that have not received state aid or that have been designated as undertakings having significant market power. It is clear that there is less likelihood of competition problems arising from the operations of such networks than from networks that do not bear obligations.

506. As specified above, a number of municipalities or residents have deployed fibre-optic without public funding, e.g., Hvalfjarðarsveit, Skeiða- and Gnúpverjahreppur and Fljótsdalshreppur. The above three municipalities have for example in common that they use income from power plants located in those municipalities.

507. Active access to these local networks is in a large majority of cases through Mila GPON service and through Tengir P2P service. Vodafone also has P2P equipment on a number of networks, but this is a very insignificant amount. As previously stated, Mila has recently purchased many of these networks, ensured long-term control over them or has deployed them with state aid. When all of these projects are completed, they will reach about 6,000 households and companies. One can estimate that at the end of 2022, connections will mostly be completed, though it is possible that some tasks may not be completed until 2023.

508. In recent months there has been cooperation between Mila and GR on the one hand and Mila and Tengir on the other, on deployment of fibre-optic networks at a number of locations outside the Capital City Area. With this cooperation, each company acquires its own fibre-optic network, civil works are kept to a minimum which reduces environmental impact and investment costs for the companies, and one could in addition argue that such cooperation speeds up fibre-optic rollout in this country. Such cooperation has taken place between Mila and GR for part of the Capital City Area, in Árborg (Selfoss), Borgarnes, Hvanneyri and Reykjanesbær. It is expected that the collaborative project in Reykjanesbær will be completed in 2022. The completion of deployment in Árborg was expected in the summer of 2020. The arrangement between the companies is that districts are divided between them, and each company deploys a fibre for the other. The representatives of both Mila and GR have expressed their satisfaction with this cooperation and it is not out of the question that it will reach more locations as time goes on, even during the lifetime of this analysis, though the PTA is not aware of such plans at this point in time. Mila and GR have also been negotiating [...]. Mila and Tengir had similar cooperation for the deployment of fibre-optic at Húsavík in the years 2019 and 2020 where the arrangement was however, that Mila implemented most of the deployment by using its existing duct and conduit system in that town, against payment from Tengir. The CA has granted these companies permission for the above specified cooperation in civil works.

509. As has previously been stated, there are two topologies for these fibre-optic networks. Mila deploys its own access network with what is called PON topology where few fibres run from a facility where active equipment can be located. A passive optical splitter distributes the light from that fibre into fibres to up to 128 customers. The optical splitter is located in a manhole quite close to the users. This kind of topology is called Point-to-Multipoint, where one connection point connects to many end users. Mila also has optical fibres in its access network where users can be connected to active equipment with a whole uninterrupted fibre. GR and Tengir use what is called point-to-point, P2P topology on their fibre-optic lines. The

line contains fibres where each fibre is intended for one end user from a facility which houses active equipment. Through the cable system the fibres are separated from the line in such a manner that each user has an uninterrupted fibre. The large number of local networks also use this topology. Mila has used such networks, e.g., with Tengir and in many rural networks, such that GPON equipment and a passive optical splitter are located in the facility for hosting active equipment and the splitter thus uses the local loop from the hosting location to the user.

6.4 Selection of areas for analysis

6.4.1 General

510. When geographically analysing the wholesale market in question for local access provided at a fixed location (Market 3a) and selection of areas for assessment, the PTA intends to refer to the above specified BEREC Common Position on geographic aspects of market analysis (geographic definitions of markets and obligations) from 5 June 2014, having taken into account the BEREC report on the application of the Common Position in question, from 6 December 2018. It will furthermore take into account the ESA Recommendation on the relevant markets, which are susceptible to ex ante regulation, from 11 May 2016 and the ESA SMP Guidelines from 14 July 2004, having also taken into account the recent update from the EU Commission on the SMP Guidelines from 26 April 2018 and it is noted that ESA is currently reviewing its own guidelines on the same subject. The PTA will also have in mind the praxis in other European states, as appropriate.

511. For reference, the PTA will have in mind the above-mentioned documents in part or in their entirety, to the extent that they harmonise with conditions on the wholesale markets in question in this country.

512. When selecting the areas in question for assessment, they need to fulfil specific criteria. According to the above specified BEREC Common Position from 2014, they are as follows:

- To be smaller than the country as a whole and to be mutually exclusive with respect to prevailing competitive conditions on these markets.
- It must be possible to map the networks of all network operators and service provided through these networks in the area in question.
- The boundaries of the areas should be clear and stable, such that parties to the market can understand them.
- To be sufficiently small to ensure that competitive conditions would be unlikely to change significantly within these areas and they should be sufficiently large to prevent an excessive burden on electronic communications companies from replying to queries and reacting to requests for data from electronic communications regulatory bodies and on the electronic communications authorities from analysing data received.⁹⁶

⁹⁶ It is often possible to use as an indicator that the area is large enough to be subject to investment decisions of network operators.

513. The advantages and disadvantages of the applicable methodologies should be analysed when segmenting into areas. The methodology should be chosen that best fit to the above specified four conditions.

514. Historically, geographic markets had in almost all cases been according to the distribution of the electronic communications network of the former monopolist incumbent. For a long time, the main principle was that there was only one such party who controlled a nationwide fixed line network in each state.⁹⁷ For this reason it has been the conclusion of the vast majority of market analyses in the EEA that the whole country was considered to be one geographic market. This has however been changing in recent semesters and years in quite a number of states in Europe (particularly on Market 3a, but less frequently on Market 3b), as one could see in the explanations here above in Appendix A-1. In later years, geographic analysis of markets has become more important and at the same time more complex than before, among other things where new network operators have entered the market in competition with the former incumbent monopolist. First and foremost, this is a question of fibre-optic networks and cable systems, but the latter has not become established to any significant degree in this country, while the rollout of fibre-optic networks has been rapid in past years.

515. In the BEREC report in question it was stated among other things that investment in deployment of electronic communications networks (other than copper systems) including an increased number of local networks can lead to a kind of patchwork where next generation systems, e.g., fibre-optic, were almost randomly available here and there in the state in question with only copper networks in other areas. Then there was a number of areas which were exceptional, with respect to the number of networks, number of electronic communications companies operating in the area and the competition environment in other respects. As stated above, the PTA plans to define the service market on Market 3a such that it includes both connections through a copper network and connections through fibre-optic local loops.

516. In the above specified BEREC report from December 2018 on the application of the BEREC Common Position there are among other things, explanations of the conditions that NRAs have used as points of reference when geographic analyses have been conducted and areas selected. It was stated that there was normally a large number of areas identified on the basis of specific conditions which were then categorised into two or more units where competitive conditions were largely comparable within each unit. These criteria used in the early stages of geographic analysis had first and foremost been based on indications on market structure, e.g., distribution of competitor networks, market share and the number of “significant” competitors at retail level in the areas in question, rather than on behaviour of parties to the market, such as with respect to pricing, product offer and product characteristics. The criterion on the number of “significant” competitors at retail level was however rather applied to Market 3b than to Market 3a. More emphasis was placed on market player behaviour later in the process when an assessment is made of whether competitive conditions are sufficiently heterogeneous between the selected areas to justify segmented geographic markets and/or varying geographic obligations by area.

517. In the report it is also stated, in discussion on selection of appropriate areas, that a large majority of NRAs had used administrative units, e.g., municipalities or postcodes, rather than the network topology of the former incumbent monopolist and as appropriate of their

⁹⁷ Exceptions to this are, as previously stated, the United Kingdom, Finland, and Hungary where more than one such party exists for historic reasons.

competitors as well. The reasons why administrative units were chosen were among other things, that they were considered to be clearly delineated and stable and that such units were generally small enough to ensure adequate homogeneity within each area and were sufficiently large for it to be possible to analyse competitive conditions in an effective manner without imposing an excessive burden on market players from replying to requests for data from an NRA or imposing an excessive burden on such institutions in their geographic analysis of the relevant market. Excessive analysis could be extremely time-consuming and not justifiable unless there was major uncertainty about the result. The number of areas analysed by European NRAs varied greatly, and to a certain extent depended on the size of the state in question. This was normally from several hundred to several thousand areas on which the NRAs had gathered information and analysed.

518. It was also stated that after having analysed the geographic areas, the next step was normally to group those areas together with similar competitive conditions. The areas were then generally grouped into areas where there was significant or some competition on the one hand and on the other hand, areas where there was less or even no competition. Varying criteria could be used for such grouping. On Market 3a it was most common that on the one hand the criterion was used that a specific number of competitors of the potential SMP operator had already deployed their own infrastructure above a specific level (at least two network operators, in addition to the network of the potential SMP operator)⁹⁸ and on the other hand that the market share of the potential SMP company was below a specific limit at the retail level. In the states, the distribution definition ranged generally from 50-75% and the condition for market share of the SMP operator variously 40% or 50%.

519. In the above specified BEREC Common Position from 2014⁹⁹ it was among other things stated that the main elements of geographic analysis are delineation of appropriate geographic areas and assessment of competitive conditions. NRAs were generally faced with two scenarios in such a task.

- **Scenario 1:** Access that is based on wholesale obligations (local loop lease, bitstream access, resale) is an important source of competition on the retail market, as appropriate with the addition of the existence of electronic communications networks operated by competitors of the incumbent SMP operator in specific areas (e.g., FTTH/FTTB fibre-optic network, cable system, mobile network or Wi-Fi system). These networks then needed to be capable of providing comparable service to the traditional copper network.

⁹⁸ The PTA has not found any precedent on Market 3a for it being sufficient for only one network of a competitor to the potential SMP operator to be in situ. On page 29 in the BEREC Common Position from 2014 it states among other things: “NRAs dealing with markets covered by Situation 2 (retail conditions mainly driven by inter-platform competition) have also considered this last criterion (the number of LLU operators present in a local exchange or the coverage of alternative infrastructures in that area, or a combination of both) as well as other criteria (such as the number of providers or the SMP operator’s market share in the geographic area), defining competitive markets (or competitive areas) where the market share of the incumbent operator at the retail level was below a certain threshold (e.g. 40-50%), and at least a certain number of competing infrastructures (generally more than two, and its ability to supply fit-for-purpose wholesale elements) existed. In addition, although in a more qualitative manner, considerations on barriers to entry, in terms of population density, and pricing strategies have also been addressed.” It then states on page 33 (paragraph 152) in the same document: “A market characterised by only two players (e.g., the incumbent and a cable operator) may thus be deemed to be not sufficiently competitive to justify the withdrawal of obligations. As noted above, BEREC has already expressed its agreement with the economic theory on the risks of collusion derived from such market structure.” (PTA emphases edit)

⁹⁹ See pages 20 and 21 in the above specified BEREC Common Position.

- **Scenario 2:** The above specified access obligations were not an important source of competition on the retail market, but rather first and foremost the existence of electronic communications networks operated by competitors of the incumbent, SMP operator (first and foremost where coverage of competitor infrastructure was substantial).

520. This differentiation belongs, however, rather to the definition of service markets than to geographic analysis. It could nevertheless have an impact on the selection of relevant units for the geographic analysis. What characterises both scenarios were that only the potential SMP operator had the possibility of providing reliable, regulated wholesale access across the whole country. This fact on its own, should not however exclude the possibility that there could be varying competitive conditions by geographic area, even at wholesale level. The more important wholesale access was for competition, the more important were telephone exchanges or main distribution frames (MDF) of the potential SMP operator in the geographic analysis. When local loop lease had been the main source of competition at retail level, upgrading of copper networks (for example with vectoring) could create challenges to the sustainability of the competition that had been identified, as the possible phasing out of telephone exchanges could significantly limit the possibilities of local loop lease. In a geographic analysis that should take a forward-looking approach, it was essential to keep this aspect in mind.

521. Finally, it was stated in the report that most NRAs had included expected future development in the equation when elaborating geographic measures. Both expected development of market share, and expected development of deployment of next generation networks, including fibre-optic networks were taken into account.

522. Taking the above into account, one must therefore find sensible and usable criteria for the selection of geographic areas that will be examined, before it becomes possible to assess whether the areas are segmentable with respect to potentially significant variations in competitive conditions between them.

523. As previously stated, when grouping areas, it is not necessary that competitive conditions are precisely the same between the areas. One should group areas where sufficiently comparable competitive conditions exist, and segment areas where there are significant differences in competitive conditions. Grouping of this nature and segmentation can then possibly have an impact on either the designation of a party with SMP or on identified competition problems and the elaboration of obligations. There are examples in Europe where the fact that an area has been segmented into more than one group for more detailed analysis has had no effect on designation of a party with SMP and/or on the elaboration of obligations.¹⁰⁰

524. In the case of a large number of small areas, it is likely that there are various parallels or continuity with respect to competitive conditions between these areas, or at least part of them. In such instances it can be difficult to draw a clear line between areas where more or less competition exists. One method was to assess competitive conditions in each of such areas separately and subsequently group the areas. This would however result in huge pressure of work on the NRAs in addition to the fact that it could be a somewhat random process. A more useful and more appropriate method would be to define clear criteria on how the areas are to be grouped. It would then be proper to have in mind the purpose of market analyses which are

¹⁰⁰ See for example discussion on the UK case from 2019 regarding the market for physical infrastructure and the Germany case regarding Market 3a from 2019, in Appendix A-1.

not in themselves a goal, but rather a device to analyse competitive conditions for the purpose of deciding whether and then on what party, obligations should be imposed to resolve competition problems for the benefit of consumers.

525. In order to better ensure that areas where sufficiently comparable competitive conditions exist are grouped together and separated from areas where significantly varying competitive conditions exist, it is appropriate to base differentiation between areas on more than one criterion. The criteria that are most appropriate for use in each instance are decided by the relevant NRA, having taken into account competitive conditions in the state in question. All selected criteria must be fulfilled such that the difference in competitive conditions between selected areas is significant, but rather small within an area.

526. A related question is whether the nature of competitors to the potential SMP operator should be a significant factor in the grouping of areas. If, for example, a potential SMP operator who operates first and foremost on xDSL systems, competes with a fibre-optic network operator in area A and with another in area B, the question is whether it is possible to group the areas in question together. In the opinion of BEREC it is the homogeneity of competitive conditions that should be the deciding factor, and not that these are two separate competitors in different areas. This means that if analysis of competitive conditions indicates that they are sufficiently comparable, then areas A and B should be grouped together. If the competitors in question “behaves”, on the other hand “differently”, this should come to light in the analysis and should result in the areas in question forming each their own geographic market, as competitive conditions were not sufficiently homogeneous.¹⁰¹

527. The definition of geographic markets is dependent on issues that can vary over time, e.g., with respect to the number of competitors in individual areas, market share and nature of demand. For this reason, the conclusion on grouping areas can change in time with a later analysis. Broadly speaking, this is not dissimilar from analysis of service markets, which can change between analyses. One of the tasks of NRAs when defining service markets and geographic markets, is to endeavour to predict future development. In the case of geographic analysis of markets, this can involve collecting information on deployment plans of the potential SMP operator and of his main competitors and endeavouring to predict development of market share based on available data or observable market conditions.

528. When forward-looking market analysis has been conducted, it is normal on the basis of regulatory certainty and predictability considerations, to make no alterations to the analysis until the next review, even though the development has proven somewhat different from the prediction. In the case of significant discrepancy, it is likely that a new market analysis needs to be conducted earlier than planned.

529. The greater the difference between network topology and distribution of the electronic communications network of the potential SMP operator and the network or networks of his competitors, the more complex a task the geographic analysis and selection of areas becomes for the NRA. Previously, when the former monopolists operated a copper network without competition, it was considered normal to base possible geographic areas on the telephone exchange area of these parties, which were generally the whole country. By far the most common scenario was that the geographic market was the whole country. In such a scenario,

¹⁰¹ See, e.g., paragraph 132, page 30 in the above specified BEREC Common Position from 2014.

varying levels of competition between areas were first and foremost decided by the existence of operators that used wholesale access to the systems of the former monopolists.

530. If on the other hand, a competitor or competitors of the potential SMP operator had deployed their own electronic communications network which had achieved significant distribution, it becomes more complex to decide which geographic units are most appropriate, as the relationship between competitive conditions and the telephone exchange areas of the potential SMP operator become less clear. In such instances, it can be more appropriate to use administrative units such as municipalities or postcodes, as the deciding factor, as network topology or distribution of the electronic communications networks of the potential SMP operator are no longer the most important criteria. Decisions on deployment of networks operated by competitors of the potential SMP operator are assessed from a totally different perspective than the telephone exchanges of the potential SMP party.

531. One can furthermore say that the guidance in the ESA SMP Guidelines from 2004, with respect to geographic definition, to the effect that the appropriate geographic area for a market depends generally on the distribution of the electronic communications network of the former monopolist and/or the jurisdiction of the Telecommunications Act, which is the whole country, could in many instances have become obsolete for the purpose of analysing varying competitive conditions by area. Such criteria could lead to excessively large-scale geographic units. It could also be more appropriate to use administrative units, particularly if the NRA can demonstrate that competitive conditions within such an area or set of such areas are sufficiently homogeneous and sufficiently different from competitive conditions in other areas or set of areas. As stated in the discussion of cases involving PTA's sister institutions in Europe in Appendix A-1, it has become more and more common in recent months and years to use administrative units, not least municipalities. The underlying reason is often that the main cause of varying competitive conditions is rather the existence of electronic communications networks of competitors of the potential SMP operator, than wholesale access to the network of the latter party. The method of using the distribution of electronic communications networks operated by the potential SMP operator (telephone exchange areas), if appropriate after taking into consideration the distribution of competitor networks, seems therefore to be rapidly on the wane.

532. Just as with geographic units based on the telephone exchange areas of the potential SMP operator there can also be disadvantages with geographic units that are based on administrative boundaries. The size of municipalities can for example vary greatly, as can the number of inhabitants and the distribution of inhabitants within the municipalities. Without additional criteria, it can be difficult to ensure homogeneity within larger municipalities, as the distribution of competitors to the potential SMP operator can vary greatly within the municipalities.

533. With the above in mind, the selection of the most appropriate geographic areas is decided by a complex interaction of factors that relate to characteristics and topology of electronic communications networks and other characteristics of the market being analysed in each instance.

6.4.2 Conclusion on selection of areas for analysis

534. In the opinion of the PTA, municipalities are appropriate units to use in geographic analysis, given conditions here in this country today. One can among other things, refer to discussion in Section 6.3 here above on the distribution of electronic communications networks, planned distribution and network topology.

535. The distribution of Mila local loop network is close to nationwide, and the company operates in almost all municipalities on the relevant market. Helgafellssveit is actually the only municipality in the country where there is no lease of Mila local loops. That municipality is very small with just over 60 inhabitants. From former times, Mila's network is divided into telephone exchange areas which were mostly based on urban kernels and service with their neighbouring rural areas.

536. Other networks have not been deployed in line with the Mila telephone exchanges. GR has first and foremost developed its network in line with the operating area of Orkuveita Reykjavíkur, which is owned by the municipalities of City of Reykjavík, Akranes and Borgarnes. In recent years, GR has extended its network to more locations in the Southwest corner of the country. Tengir has developed its network in Eyjafjörður and widely in North Iceland, also on the basis of municipalities. The local networks that have received funding from Iceland Optical Connected are developed within the municipalities although they do not all achieve total covering of a whole municipality. A number of municipalities have also funded networks for their inhabitants, with or without the participation of inhabitants, without public funding. It also seems that boundaries based on distribution and network topology of the potential SMP operator are very much on the wane in Europe. Mila has extended its fibre-optic network widely, both in the Capital City Area, widely in Southwest Iceland and in other regions at various locations in the country. Given Mila's vigorous deployment plans for the coming years, it is clear that the Mila fibre-optic network will significantly increase density at a national level throughout the lifetime of the analysis.

537. The PTA also examined whether postcodes could also be suitable for geographic analysis. The PTA does not agree with the Siminn Group that postcodes are more suitable criteria than municipality boundaries when assessing homogeneity or differing competitive conditions by area in this country. Among other things, the very numerous local fibre-optic networks that have received state aid through the project, Iceland Optical Connected, have been deployed within the municipalities in question, though they do not in most instances entirely cover each municipality as a whole, up to this point in time. A number of municipalities have, furthermore, also funded networks for their inhabitants, with or without the participation of inhabitants, without public funding. In addition to this, some postcodes, cover very extensive areas while others cover very small areas. There is also the fact that some postcodes in the countryside cover more than one municipality while in other municipalities there are many postcodes. According to the Act on Postal Service number 98/2019, the sole purpose of postcodes is for geographic demarcation, in order to locate the recipient and thus facilitate distribution of post. The purpose of postcodes is therefore only to support efficient distribution of post. It is not required that postcodes and their geographic coverage follow the boundaries of individual regions, municipalities or counties. Many smaller municipalities do not have their own postcode, but rather share a postcode with another or other municipalities. There are 170 postcodes in the country (after deducting post box numbers), while municipalities are 69. The population of Iceland is about 370,000. The average number of inhabitants by municipality is about 5,400 against 2,200 if one were to use postcodes.

538. The Local Authorities Act no. 138/2011 deals with municipalities. In Article 1 it states that the country is divided into municipalities which are responsible for governing their own affairs. The administration of municipalities is managed by the local authorities who are democratically elected. Each person shall be deemed a resident in the municipality in which they are legally domiciled. Municipalities are legal entities. In Article 3 it is stated that the Act forms a general foundation for the operation and public administration of the municipalities. It is stated in Article 4 that municipalities have certain boundaries that are dependent on the outer limits of the sites of their real estate, including public lands, that lie within them. Municipality boundaries may not be altered except by law. Despite this, the Ministry can change municipal boundaries in connection with merging. When two or more municipalities become a new municipality, it will have the same outer geographic demarcation as the merged municipalities had vis-à-vis other municipalities.

539. Though the merging of municipalities could become a reality to some extent during the lifetime of the analysis, it is the assessment of the PTA that such changes do not constitute unstable boundaries as in the merging, a geographic area does not move from one area to another, but it is rather that the areas merge and the boundary of the merged municipality remains unchanged vis-à-vis other municipalities. It is also generally very sparsely populated municipalities in the countryside that could merge. After the merging of four municipalities in East Iceland was completed in the spring of 2020, municipalities then totalled 69¹⁰². It is much more common in Europe, to use municipality boundaries than postcodes.

540. In the BEREC Common Position on geographic analysis from 2014 one criterion that must be taken into account when choosing areas for geographic analysis is that the boundaries of the areas should be clear and stable, such that parties to the market can easily understand them. The PTA considers that both parties to the market, consumers and other stakeholders find it easier to understand boundaries of municipalities than the large number of postcodes, which in the opinion of the PTA are not very transparent and are numerous for a country with as small a population as Iceland. It is therefore the assessment of the PTA that there is greater transparency in applying municipality boundaries than postcodes in connection with this market analysis, and in addition to this it is more appropriate on the basis of prevalent competitive conditions on the relevant market. The PTA thus considers that investment decisions of electronic communications infrastructure companies are made rather on the basis of municipal boundaries than postcodes, as they often come to an agreement with the relevant municipalities on fibre-optic rollout in the relevant municipality, with or without state aid from the Telecommunications Fund. This is precisely one of the issues that is considered to be of importance in the above specified BEREC position.

541. Furthermore, the above discussion in Section 6.4.1 here above, where among other things, reference is made to the BEREC report, supports these PTA intentions.

542. Having taken all of the above into account, the PTA plans to use municipality boundaries when selecting areas for geographic analysis.

543. As stated above, it was stated in the aforementioned BEREC Common Position that generally there needs to be more than one network competitor of the SMP operator for it to be possible to consider that effective competition, or at least significant competition, can exist on the relevant market. In Iceland it is generally the case that there is only one network competing

¹⁰² The municipalities Fljótshádalshérað, Djúpavogshreppur, Borgarfjarðarhreppur and Seyðisfjarðarkaupstaður became the municipality Múlaþing.

with Mila in each area and it is assumed that this situation will not change during the lifetime of this analysis. Large and rather sparsely populated areas enjoy however, no such competition.

544. In order to divide the areas into units with little or no competition on the one hand and units with more competition on the other hand it is in the opinion of the PTA, normal in the light of conditions in this country today to subject such division to rather strict criteria. As has been previously stated, there are no known examples from Europe that the existence of only two networks, including the network of the former monopolist, has justified geographic measures on the relevant market.

545. Having taken the above into account, the PTA plans to categorise areas as having more competition where the following two conditions are fulfilled in the municipality in question.

- That there is a fibre-optic network that competes with Mila in the relevant area, which has distribution to at least 75% of households and companies.
- That the Siminn market share on the retail market for broadband service is under 50%.

546. In the table below, one can see the status in the country's 69 municipalities with respect to deployment of fibre-optic networks other than that of Mila on the one hand and on the other hand, with respect to the Siminn share in retail at the end of 2020:

Table 6.1 Criteria on distribution and retail share in individual municipalities

Status as of end of year 2020				
Number:	Municipality	Distribution other than Mila	Siminn retail share	Conditions fulfilled
0	The City of Reykjavík	98.7%	[...]%	2
1000	Kópavogsbær	99.6%	[...]%	2
1100	Seltjarnarnesbær	99.7%	[...]%	2
1300	Garðabær	98.7%	[...]%	2
1400	Hafnarfjarðarbær	94.7%	[...]%	2
1604	Mosfellsbær	95.0%	[...]%	2
1606	Kjósarhreppur	62.0%	[...]%	1
2000	Reykjanesbær.	46.2%	[...]%	0
2300	Grindavíkurbær	2.5%	[...]%	0
2506	Sveitarfélagið Vogar	5.4%	[...]%	0
2510	Suðurnesjabær	0.0%	[...]%	0
3000	Akraneskaupstaður	93.7%	[...]%	2
3506	Skorradalshreppur	52.5%	[...]%	1
3511	Hvalfjarðarsveit	70.5%	[...]%	0
3609	Borgarbyggð	69.7%	[...]%	0
3709	Grundarfjarðarbær	5.0%	[...]%	0
3710	Helgafellssveit	78.9%	[...]%	1
3711	Stykkishólmsbær	0.0%	[...]%	0
3713	Eyja- og Miklaholtshreppur	72.1%	[...]%	0
3714	Snæfellsbær	0.0%	[...]%	0
3811	Dalabyggð	43.1%	[...]%	0

4100	Bolungarvíkurkaupstaður	24.0%	[...]%	0
4200	Ísafjarðarbær	51.5%	[...]%	0
4502	Reykholahreppur	50.9%	[...]%	0
4604	Tálknafjarðarhreppur	10.0%	[...]%	0
4607	Vesturbyggð	4.9%	[...]%	0
4803	Súðavíkurhreppur	20.3%	[...]%	0
4901	Árneshreppur	-	-	-
4902	Kaldrananeshreppur	23.1%	[...]%	0
4911	Strandabyggð	16.5%	[...]%	0
5200	Sveitarfélagið Skagafjörður	0.0%	[...]%	0
5508	Húnaþing vestra	7.1%	[...]%	0
5604	Blönduós bær	2.0%	[...]%	0
5609	Sveitarfélagið Skagaströnd	0.0%	[...]%	0
5611	Skagabyggð	0.0%	[...]%	0
5612	Húnavatnshreppur	87.7%	[...]%	1
5706	Akrahreppur	0.0%	[...]%	0
6000	Akureyrarbær	71.4%	[...]%	0
6100	Norðurþing	37.0%	[...]%	0
6250	Fjallabyggð	33.3%	[...]%	0
6400	Dalvíkurbyggð	83.6%	[...]%	1
6513	Eyjafjarðarsveit	80.2%	[...]%	1
6515	Hörgársveit	64.5%	[...]%	0
6601	Svalbarðsstrandarhreppur	87.1%	[...]%	2
6602	Grýtubakkahreppur	85.5%	[...]%	2
6607	Skútustaðahreppur	58.5%	[...]%	1
6611	Tjörneshreppur	100.0%	[...]%	2
6612	Þingeyjarsveit	73.3%	[...]%	0
6706	Svalbarðshreppur	88.9%	[...]%	1
6709	Langanesbyggð	18.8%	[...]%	0
7300	Fjarðabyggð	0.8%	[...]%	0
7400	Múlaþing	6.5%	[...]%	0
7502	Vopnafjarðarhreppur	13.5%	[...]%	0
7505	Fljótisdalshreppur	80.4%	[...]%	2
8000	Vestmannaeyjabær	0.1%	[...]%	0
8200	Sveitarfélagið Árborg	67.5%	[...]%	0
8401	Sveitarfélagið Hornafjörður	12.9%	[...]%	0
8508	Mýrdalshreppur	25.4%	[...]%	0
8509	Skaftárhreppur	15.5%	[...]%	0
8610	Ásahreppur	76.6%	[...]%	2
8613	Rangárþing Eystra	41.6%	[...]%	0
8614	Rangárþing Ytra	75.6%	[...]%	2
8710	Hrunamannahreppur	48.8%	[...]%	0
8716	Hveragerðisbær	92.5%	[...]%	2
8717	Sveitarfélagið Ölfus	75.2%	[...]%	2
8719	Grímsnes- and Grafningshreppur	0.0%	[...]%	0

8720	Skeiða- and Gnúpverjahreppur	78.8%	[...]%	2
8721	Bláskógabyggð	29.4%	[...]%	0
8722	Flóahreppur	87.9%	[...]%	2

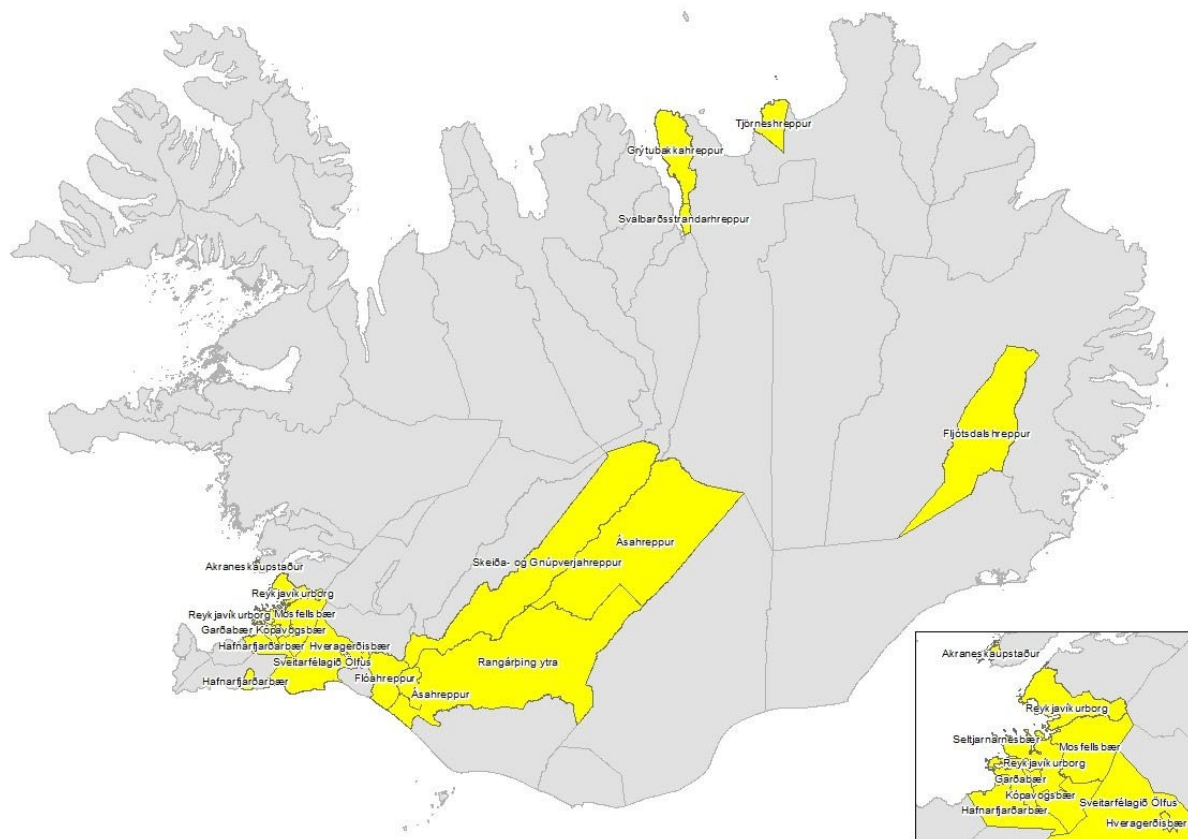
547. The PTA has analysed the data in question and seen that the above specified conditions are fulfilled simultaneously in 17 of the municipalities specified below¹⁰³ at the end of 2020. The PTA will then annually update the list accompanying the decision, in the first instance early in 2022, with the status as of end of year 2021:

- The City of Reykjavík
- Kópavogsbær
- Seltjarnarnesbær
- Garðabær
- Hafnarfjarðarkaupstaður
- Mosfellsbær
- Akraneskaupstaður
- Svalbarðsstrandarhreppur
- Grýtubakkahreppur
- Tjörneshreppur
- Hveragerðisbær
- Sveitarfélagið Ölfus
- Flóahreppur

¹⁰³ In the preliminary draft, there were only 6 municipalities that fulfilled the conditions that the PTA plans to apply for a municipality to be considered to belong to the area where lighter obligations should apply on the relevant market, i.e., City of Reykjavík, Seltjarnarnesbær, Svalbarðsstrandarhreppur, Grýtubakkahreppur, Tjörneshreppur and Skútustaðahreppur. The criteria were then 3, i.e., 75% distribution of networks other than that of Mila, that the Siminn market share was below 40% and that the Mila market share in wholesale was below 50%. As is stated in Section 6 in Appendix C, which discusses the additional consultation opened by the PTA on 30 October 2020, the PTA decided after having reviewed comments on the first draft, to reduce the conditions to two, i.e., 75% distribution over fibre-optic networks other than that of Mila and that the Siminn market share was under 50% instead of 40%. On the other hand, the PTA decided to retract the third condition for a specific Mila market share. In the additional consultation document, it was the PTA conclusion that 15 municipalities fulfilled the above specified two conditions. After having received updated data for the end of 2020, it came to light that 3 more municipalities fulfilled the conditions, i.e., Fljótsdalshreppur, Skeiða- and Gnúpverjahreppur and Rangárfing Ytra, and that Skútustaðahreppur which was on the initial list, did not. There are thus now 17 municipalities that fulfil the conditions to belong to areas where there is more competition and where lighter obligations will therefore apply. With respect to further arguments, reference is made to Section 6 in Appendix B and to the same section in Appendix C.

- Ásahreppur
- Fljótsdalshreppur
- Rangárþing Ytra
- Skeiða- og Gnúpverjahreppur

Figure 6.5 *Municipalities where both the distribution of networks other than those of Mila exceed 75% and that the Siminn retail share is below 50% at the end of 2020*



Source: Post and Telecom Administration

6.5 The position on the retail market, with respect to geographic analysis

6.5.1 General

548. As previously stated, the starting point for market analysis, including geographic analysis, is generally to examine competitive conditions on related retail markets, given that they are informative for analysis on the relevant wholesale market. It is also necessary to keep

in mind how competitive conditions would be on the relevant retail market without wholesale obligations (modified greenfield approach).

549. In Sections 6.1-6.4 in the above specified BEREC Common Position from 2014 there is among other things discussion on the importance of competitive conditions on related retail market or markets, when conducting geographic analysis of markets. Then it is emphasised that the main purpose of obligations subsequent to market analysis of electronic communications markets is to remove or minimise the damage that consumers may suffer as a result of lack of effective competition.

550. As is stated in the above specified ESA Recommendation on relevant markets that can be susceptible to *ex ante* regulation, analysis of the relevant wholesale markets should commence with the definition of the relevant service market. The next step is to decide the composition of the geographic market, before an assessment is made of the competitive pressure that may exist on the market in question or markets, both on the demand and supply sides. Products on Markets 3a and 3b are procurements for broadband service and generally they should therefore be analysed together.

551. Competition problems on the retail markets in question are generally caused by inadequate competition in infrastructure and/or lack of effective wholesale access. As the wholesale markets in question are related in the same value chain, there is an obligation to react to current or potential competition problems on the retail market in question, on that wholesale market, that is lowest in the value chain, i.e., on Market 3a. It may be that the obligations on that market do not suffice on their own to resolve the competition problem on the retail market in question, and then measures must also be taken on the wholesale market that is higher in the value chain, i.e., Market 3b. It is not until it is finally clear that obligations on the relevant wholesale markets do not suffice that the option is considered of reacting to the competition problems identified, with obligations at retail level.

552. The above means that if no competition problems are identified on the retail market in question, then it is not an option to apply obligations on the above specified wholesale markets. That is to say that if the conclusion of analysis of the retail market in question indicates that effective competition on the retail market is not dependent on whether wholesale obligations are in force on the above specified wholesale markets (modified greenfield approach).

553. BEREC has in many of its documents during recent years, described in detail the relationship between retail and wholesale markets and how competitive pressure on retail markets shall be reflected in assessment of wholesale markets.¹⁰⁴ BEREC has repeatedly stated that it would be normal to take internal sales into account when defining a service market in wholesale or when assessing SMP, if the indirect competitive pressure (without obligations) is sufficient to have a real impact on competitive conditions on the relevant wholesale market. For example, the NRA conclusion that a cable system had significant competitive weighting on the retail market should lead to the NRA in question to examining, when defining the relevant wholesale market or when assessing SMP, the question of what pressure the cable operator or operators exerted on the potential SMP operator. The wholesale market, where

¹⁰⁴ See e.g., BEREC Report on self-supply, BoR (10) 09, from March 2010 and BEREC Report on case ES/2008/0805 and CZ/2012/1322. In the former report, it says, among other things on page 12: “ ... *the competitive pressure exerted by alternative infrastructures such as cable, fibre, mobile connections or other technologies will normally have been addressed by the NRA in the context of a retail market assessment, and will thus be determinative of the products that need to be considered when dealing with indirect constraints.* ”

there was significant competition, could also be one of the explanations as to why there was competition on an underlying retail market. Furthermore, the NRA, even in the case of a “hypothetical” wholesale market, which was characterised by internal sales, could have sufficient indications to conclude that effective competition existed on a related retail market, particularly if strong and sustainable competing infrastructures existed on the relevant wholesale market.

554. BEREC furthermore considers there to be need to analyse the underlying retail market in detail in such a manner that it is possible to assess the need for obligations on the wholesale markets in question and assess the importance of internal sales on those markets.¹⁰⁵ It is therefore a normal first step in analysing Market 3a and Market 3b, to analyse the underlying retail market, or retail markets. Analysis of competitive conditions, assessment of strength of indirect competitive pressure and a decision on whether internal sales should be included is a complex task, which must be implemented on a case-by-case basis.

555. As stated in the above specified BEREC Common Position from 2014, it is much more common that geographic measures are applied on Market 3b rather than on Market 3a. There it is stated among other things, that NRAs have generally decided that the geographic market is the whole country, despite having identified some difference in competitive conditions on a related retail market.¹⁰⁶ The reason for this, from the point of view of Market 3b, is that LLU operators can, in specific areas, generate competitive pressure which can have a significant impact on assessment of the competition level. Such parties do not influence Market 3a, but only real network operators. The same can be said for indirect competitive pressure, where it exists. Such pressure has a greater impact higher in the value chain, i.e., on Market 3b.¹⁰⁷ LLU can be an indicator for certain intra-platform competition on the retail market, and in addition such a structure can diminish access barriers to Market 3b. It is also common that the number of electronic communications companies operating on Market 3b is greater than on Market 3a, as in that instance there can be parties operating at wholesale level that can take advantage of electronic communications networks of network operators, but not of their own electronic communications network.

556. Despite the above, it would not be possible to exclude the possibility that inter-platform competition on Market 3a was sufficient, depending on circumstances in specific areas, in order to ensure effective competition on the underlying retail markets, despite wholesale obligations having been lifted or not having been in place. Then the NRA could decide to segment geographic markets or apply varying obligations by area and thus even deregulate part of the market. Such could however lead to access to networks not being on offer in specific areas, which could possibly reduce the number of competitors and increase the importance of those that remain. The NRAs should thus in the opinion of BEREC, consider the impact of the above on competition on the underlying retail markets.

¹⁰⁵ See paragraph 74 on page 19 in the BEREC Common Position from 2014.

¹⁰⁶ See page 19. From the time that the Common Position in question was published in 2014, it has become increasingly common that NRAs segment geographic markets and/or impose varying obligations on Markets 3a and 3b, particularly on Market 3b.

¹⁰⁷ Indirect competitive pressure can, e.g., come from cable systems, mobile networks, fixed wireless access networks, etc. Such access can for example belong to the underlying retail market, and even to Market 3b, without belonging to Market 3a.

6.5.2 Conclusion on the position on retail markets with respect to geographic analysis

557. In Section 3 here above there is detailed discussion on competitive conditions for fixed access and broadband service in retail. In Section 3.2.6 one can see the PTA conclusions on competition on the retail market in question. There it is stated that the retail market in question, comprised only copper connections (both ADSL and VDSL), fibre-optic connections and cable connections which gave service providers the option of providing consumers with Internet and related services, which was delivered over bitstream, that is to say distribution of TV service over IPTV and IP voice telephony (VoIP). Taking account of service offer and of other circumstances in this country and on practices elsewhere in the EEA, it was the PTA conclusion that in this country a chain of substitution existed that supported the above specified substitute. In addition to this, homogeneity in pricing and service-offer on varying Internet connections strongly indicated that they belonged to the same market. In the opinion of the PTA, the consumer survey that the PTA commissioned in the autumn of 2020, confirms the above specified substitutability assessment.

558. It was stated that connections for households and companies had, in many instances, the same characteristics in this country, among other things because of the small size of Icelandic companies and because of powerful household connections, and these connections could in many instances belong to the same retail market. Some companies have on the other hand a need for special connections with more bandwidth and/or a higher service level. Such connections belonged to a separate retail market for high-quality connections which related to separate wholesale market that enable such connections (Market 4/2016). This wholesale market will be analysed later in the year 2021.

559. It was furthermore the PTA conclusion that it was perfectly clear that effective competition did not exist on the retail market in question, despite the obligations resting on Mila, pursuant to the PTA Decision no. 21/2014 on wholesale markets for local loops and bitstream access. Furthermore, that the position on the retail markets would doubtless be worse if it were not for the wholesale obligations in question. For this reason, the PTA had considered it important to analyse the situation on the wholesale markets for local access provided at a fixed location (Market 3a) and for central access provided at a fixed location for mass-market products (Market 3b), as they are closely related to the above specified wholesale markets for local loops and bitstream access.

560. It was also stated that market analyses in the EEA had generally shown that in retail on the markets for standard broadband connections and high-quality connections, there would be a lack of competition if obligations on the underlying wholesale markets (one or both), particularly in states where there is only one network with national coverage were not in place. In this country, it was only the Mila network that had close to national coverage, and it was therefore likely that the situation on the relevant retail markets here would be similar to what is generally the case within the EEA, if obligations at wholesale level were not in place.

561. Mila fibre-optic and copper networks reached 147,005 spaces (homes and companies) at the end of year 2020, which makes 90.1% of total of total spaces in the country¹⁰⁸. At the same

¹⁰⁸ From the locations list submitted to the PTA by Mila about distribution of its networks, it was not possible to locate about 7% of the Mila locations from the register at registers Iceland of homes and companies. These could be buildings and sheds that are not covered by the definition of home or company, lift wells or facilities structures of various kinds or buildings at the construction stage which are not yet registered with Registers Iceland as homes or companies. Mila distribution has thus in all likelihood be underestimated in this respect, or by up to 10,000 connections. The PTA therefore estimates that the Mila network reaches about or over 95% of spaces.

time, the company's fibre-optic network reached at least 77,000 spaces, which represents at least 47.2% of the 163,209 spaces in this country, and its development did not commence to any significant degree until 2016. The Mila copper network reached however 140,496 spaces at the end of 2020, which is 86.1% of total spaces. Development of the Mila fibre-optic network has thus been very rapid. It was difficult to predict Mila fibre-optic distribution through 2023, as the company only provided the PTA with information in autumn 2020 on the total investments in the coming years, but not the estimated number of spaces. Despite repeated queries from the PTA from January until March 2021, Mila did not provide the PTA with information on estimated number of deployed fibre-optic spaces in 2021, and certainly not for longer into the future. Information was finally received from Mila on 15 June 2021, or after the draft market analysis was sent to ESA for informal consultation. The company plans to increase its FTTH connections by around [...] a year in 2021-2023, or a total of [...] connections. Various reservations were made in the forecast. Given the information that the PTA has at its disposal and the amounts that Mila intends to allocate annually to fibre-optic deployment, and on the basis of the number of deployed fibre-optic spaces since 2016, the PTA considers it to be not out of the question to estimate that the company's deployed fibre-optic spaces will increase by at least [...] a year to the end of 2023 and will then at least total [...] which represents at least [...]% Mila distribution at a national level at end of year 2023, if one allows for the total number of spaces in the country, increasing by about 3,000 per annum and will then be about 172,000. Part of the difference between the PTA forecast and Mila is that Mila only assumes an increase in capacity of 2,000 per year, but the PTA considers this to be too small. This forecast could however be underestimation, as the Siminn Group announced on 31 August 2021, in its presentation on an investor presentation, that in May 2021, the number of fibre-optics of Mila reached 100,000 homes and companies in May 2021. The PTA also takes into account that at the beginning of 2021, specific assets were transferred from Siminn to Mila (among other things the mobile phone system (RAN) and the IP-MPLS system), which in the opinion of the PTA could create more latitude for Mila for more rapid fibre-optic deployment than before.

562. At the end of 2020, the GR fibre-optic network reached something over 109,000 spaces, which represents about 67% of homes and companies in the country, and these are all in the Southwest part of the country. According to information from GR from autumn 2020, the company expects that the network will reach about [...] spaces at end of 2023. Should this happen, the fibre-optic deployment that the company has conducted in recent years will decelerate significantly. If one assumes that spaces will increase by about 3,000 per annum, among other things because of new builds, it is clear that spaces will be in 172,000 at the end of 2023. According to this, the GR network will reach about [...]% of the country's households and companies at the end of 2023.

563. At the end of 2020, the Tengir fibre-optic network reached about 9,500 spaces, which is about 6% of the country's households on companies, but only in the North part of the country. The fibre-optic networks of GR and Tengir thus reached about 73% of the country's households at that time. Tengir projects an increase of up to [...] connections per annum up to the end of 2023, and they should then be about [...] and thus reach about just over [...]% of spaces in the country.

564. The Snerpa fibre-optic network in the West Fjords reached 1,173 spaces at the end of 2020, which is well within 1% of spaces at a national level. Tengir intends to increase local loops by about [...] per annum until the end of 2013. It will then reach about [...] spaces which makes approximately [...]% distribution at national level. The fibre-optic network of Austurljós at Egilsstaðir in East Iceland reached 200-300 spaces at end of 2020. The company's

distribution plans are on the other hand, subject to considerable uncertainty, particularly as Mila has also deployed a fibre-optic network in that town and has announced plans for major fibre-optic rollout in the municipality in 2021. It is clear that the fibre-optic networks of Snerpa and Austurljós are very small and do not have an impact on the competitive position on the relevant wholesale markets in this country, to any significant extent.

565. In total, the fibre-optic networks of GR, Tengir, Snerpa and Austurljós reached just over 120,000 spaces at the end of 2020, which represents 74% distribution at national level, and it is expected that they will be about [...] at end of 2023, which represents [...] % distribution, given that the number of spaces in the country will then be about 172,000. As stated above, the PTA estimates that the number of Mila deployed fibre-optic spaces at end of 2023 could total at least [...], which represents at least [...] % distribution at national level. For this reason, the PTA believes that there will be a significant levelling of the number of fibre-optic connections of Mila on the one hand and the four other electronic communications infrastructure companies on the other hand during the lifetime of the analysis.

566. One can therefore expect GR and Tengir connections in use to increase somewhat during the lifetime of the analysis, although it is likely that this will be insignificant in terms of percentage points. The Mila market share of the wholesale market in question was however very substantial at the end of 2020, standing at 57% at a national level on Market 3a and also 57% on Market 3b. During the lifetime of the analysis, it is not assumed that the Mila market share will decrease substantially on the wholesale markets in question and will remain over 50% at the end of the lifetime of the analysis on both wholesale markets.

567. It was then stated in the above specified Section 3.2.6 that the Siminn Group's strong position on the retail market, as the company's market share appeared to have remained relatively stable in recent years and was over 46% at the end of 2020, and also on the above specified wholesale markets, strongly indicated that if it was not for wholesale obligations, the Group could operate without concern for competitors or consumers and could maintain access barriers to infrastructure, systems and service. The Siminn market share of the retail market had in reality only decreased by a very few percentage points since the last PTA analysis of the wholesale markets in question in the year 2014. A company's market share is an important factor in market analysis. It is however not the only factor that decides whether a company is designated as having SMP, but it can give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to established case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the guidelines, a suspicion that single dominance exists with one company does normally not arise until market share has reached at least 40%. This depends, however, on the size of the company in comparison with its competitors. In some instances, a company with market share of less than 40% can be deemed to have SMP. Despite the powerful entrance of Nova to the market in question in recent times and the merger of Vodafone and 365 in 2017, the Siminn market share had not significantly decreased in recent months and years. At the same time the company's main competitor, Vodafone, had lost significant market share.

568. It was finally stated in the section in question that the Siminn Group's offer of the Heimilispakkinn bundle, which commenced in October 2015, which was at least a triple play and even a quad play, with components that related to mobile phone service where the emphasis was to encourage customers of the company's content provider, Sjóntvarp Símans Premium, to conduct business with its own electronic communications company (Mila and Siminn) - seemed to be one of the reasons for this Siminn success. The success of the Sjóntvarp Símans

Premium content provider, which is part of the bundle in question, seems to have played a very significant role in this matter. It doubtless strengthened the Siminn position that the company acquired broadcasting rights to English football from and including summer 2019 for three years. In the spring of 2021 Siminn acquired these rights until the summer of 2025. These rights had for many years been in the hands of the main competitor, Vodafone, and before that in the hands of 365 miðlar which merged with Vodafone in 2017. Siminn breaches of Paragraph 5 of Article 45 of the Media Act had furthermore been revealed, breaches that seemed to have improved the Siminn position on the retail market in question from the time that the breaches commenced in October 2015 at least until August 2018 when the company introduced an OTT solution in its TV distribution and an IPTV solution. Even without the success of this bundle one must consider that vertical integration and the position of the Group are such that it would have significant power, incentive and opportunity to apply access barriers if it were not for the obligations which then rested on Mila on the relevant wholesale markets.

569. In Section 3.1.4.1 here above, where there is discussion on demand on the retail market in question with respect to consumers, it was stated among other things that differentiation on the basis of technical characteristics of Internet access, such as capacity and service quality, was little if any. One could say that a normal Internet connection carried the traffic that consumers wanted, with quality that sufficed for their needs. This could be seen in the way that service providers presented their products on the retail market in question.

570. In Section 3.1.4.4 here above, where there was general discussion on demand on the retail market in question, it was stated among other things that it was clear that increased access to various kinds of TV content had now become the main driver of consumer demand on the retail market in question. In addition to the IPTV systems of Siminn and Vodafone, various OTT operators provided service through the public Internet access of their customers, to carry data to consumers.

571. In Section 3.1.4.5 here above, where there was discussion on the share of companies in bundles, it was stated that such bundles, particularly those that included TV service with electronic communications service, were becoming more popular with consumers and that Siminn thus had a substantial lead on its competitors with its Heimilispakkinn bundle. The PTA considered there to be no need to decide in this market analysis whether the market for bundles had become a separate market at retail level, as it was clear that the underlying wholesale products were the same regardless of whether Internet service, IPTV and voice telephony service over IP (VoIP) were sold as separate retail products or sold together in a bundle. Reference was furthermore made to the Competition Authority Decision no. 42/2017 (merger of Fjarskipti hf. and 365 miðlar) where that Authority considered it important to take bundles particularly into account when assessing the impact of the merger in question. It was stated that this applied particularly to assessment of capability and possibilities of merging parties to leverage their strong position on one market (e.g., subscription TV) to improve their position on another market (e.g., Internet service). In the opinion of the PTA, it is clear that these concerns are no less applicable, or even more so, to the Siminn Group as the Group is now a strong player on the TV market, and in addition to that it is the largest and most powerful party on the retail market here under discussion.

572. The above specified discussion in Section 3 here above is a description of the status on the retail market in question at a national level and does not emphasise possible geographic difference in competitive conditions on the retail market in question. One can in many respects refer to this discussion in this connection.

573. Here in the following text, emphasis will be placed on discussing possible differences in competitive conditions that may exist at retail level by area. In a general manner and on the basis of municipalities, various aspects will be taken into account on the retail market, such as market share, pricing, quality of connections, number of significant competitors, service offer, marketing policy (e.g., advertisements) and the nature of demand. Section 6.6 here below, entitled “Assessment of homogeneity in competitive conditions in selected areas” contains detailed discussion of these aspects, both at retail and wholesale level, and reference is furthermore made to this discussion. There has been discussion here above on the distribution of copper and fibre-optic networks in this country in Section 6.3 and reference is furthermore made to this discussion.

574. Siminn provides retail service for broadband services virtually nationwide, as the former monopolist incumbent in electronic communications in this country. The company does this first and foremost by offering high speed connections over fibre-optic and copper network (mainly VDSL). At occasional locations, the company only offers upgraded ADSL connections, but examples of this are rapidly decreasing, and there are less than 3% of the total number of bitstream connections. The company enjoys what is called ubiquity on the market in question.

575. The number of competitors to the company varies somewhat by geographic area but significant competitors such as Vodafone, Nova and Hringdu provide retail service in all the most populated areas, and in addition to this there are local competitors such as Snerpa in the West Fjords. The Mila wholesale offer of close to nationwide bitstream access through Access Option 3 also provides purchasers of that service with access to all connected households in the country. Each retailer has in reality access to the whole country with one access service at bitstream level.

576. Siminn market share was about 46% of the retail market in question at national level at the end of 2020. The Siminn market share by municipality varies somewhat, from [...] % at its smallest (Fljótshreppur) and up to being almost [...] % in other small areas. In the Capital City Area (Reykjavíkurborg, Kópavogsbær, Seltjarnarnesbær, Garðabær, Hafnarfjarðar-kaupstaður and Mosfellsbær) Siminn had about [...] % market share, while it was common for the company's market share outside this area to be in the range of [...] %, apart from those municipalities where GR or local networks operate. The Siminn share in the whole GR operational territory was for example [...] %.

577. In July 2020, Siminn and GR agreed on Siminn's bitstream access to GR's fibre-optic network. On 25 August 2021, Siminn began to provide its services via the GR network. The agreement states that at least [...] % of Siminn's customers will be on GR's network within [...] years, i.e., [...] customers compared to Siminn's current customer group. The PTA has made a forecast of the impact of this agreement on Siminn's market share based on this information and probable development in the opinion of the PTA. The forecast assumes that Siminn's customers on GR's network will be around [...] by the end of 2021 and [...] by the end of 2022. It can be assumed that those customers will consist of both Siminn's customers who have been on the Mila network as well as from customers who have been on the GR network but have been customers of Siminn's competitors. The PTA expects that this proportion will be [...] until throughout 2021, but after that they will be [...] % from the first group and [...] % from the second group. It can therefore be expected that Siminn will significantly strengthen its position in GR's operating area throughout the lifetime of this analysis, especially in Seltjarnarnes and Reykjavík, where Siminn's market share was somewhat lower at the end of 2020 than elsewhere in the capital area or in the GR area as a whole. Siminn's market share was [...] % in

Seltjarnarnes and [...] % in Reykjavík at that time, while it was [...] % elsewhere in the Capital City area and up to over [...] % in some places in the GR area. On average, Siminn's market share was around [...] % in the entire GR area. The PTA assumes that Siminn's market share will have reached about [...] % by the end of 2023 in the GR area, of which about [...] % in both Reykjavík and Seltjarnarnes, all other things being equal, and will reach above [...] % nationally by that time.

578. Moreover, Siminn had [...] % market share in the Tengir operational territory at the end of 2020.

579. With respect to Siminn pricing, it is not possible to discern any difference by geographic area. The same applies to Siminn competitors where they operate.

580. With respect to quality of connections, is not possible to discern any difference by geographic area, where the relevant access technology is available. Quality of the access technology is thus comparable between areas. There is nothing to indicate otherwise than that this is also the reality with Siminn competitors, as in many instances it is the same underlying wholesale product which provides retailers with access to the customers. Other internal quality aspects in the operations of retailers, such as their core systems, capacity of their foreign connections and other aspects that can impact on consumer experience, appear to be comparable.

581. With respect to Siminn service offer, it is the same in all areas where the relevant access technology is on offer, i.e., Internet service, IPTV and VoIP. Fibre-optic connections and VDSL connections can easily offer all of the above services. It is mainly the weakest ADSL connections that may have difficulty handling this, but they are now very few and are decreasing rapidly in step with increasing fibre-optic rollout, about or under 3%. Where there are weak ADSL connections, there is no difference in such connections by area, or in the service offered. This also applies to Siminn competitors.

582. With respect to marketing policy and other Siminn market behaviour, there is no indication that they vary between areas. For example, the company's advertisements are directed at all the inhabitants of the country and generally not at specific areas, except in the case of a specific temporary marketing campaign in specific areas. The same can be said about Siminn competitors. It is not possible to discern a difference in consumer needs by residence or by geographic area.

583. In the opinion of the PTA, it is not possible to discern a difference in demand for the above specified broadband service on the basis of area, neither with respect to Siminn products or those of its competitors.

584. With the above in mind, the PTA considers there to be no significant difference in competitive conditions on the retail market for broadband service in this country by geographic area and that the geographic market is therefore the whole country at retail level.

6.6 Assessment of homogeneity in competitive conditions in selected areas

6.6.1 General

585. When the appropriate geographic units have been selected, the NRAs should assess whether competitive conditions are sufficiently homogeneous between them for the country as a whole to be considered one geographic market, or sufficiently different such that the market should be segmented geographically into more than one area, or to impose obligations that vary by area.¹⁰⁹

586. When assessing homogeneity of competitive conditions, the NRAs should conduct an assessment of possible differences in competitive conditions with analysis of both the relevant retail and wholesale markets. Aspects should be examined, such as:

- 1) Barriers to entry into the relevant markets.
- 2) Number of significant competitors that exert competitive pressure on the SMP operator.
- 3) Market share of the potential SMP operator and of his competitors.
- 4) Pricing and possible price differences.
- 5) Other aspects, such as marketing strategies of parties to the market, service offer on the retail market and possible difference in content of the market, the nature of demand, quality of connections etc.

587. The most important of all is to investigate possible competitive pressure from significant competitors. Geographic analysis shall be based on real competitive conditions, as reflected by the behaviour of parties to the market (e.g., pricing) and the impact of such behaviour on market structure (e.g., market share). When conducting a geographic analysis, this shall be forward-looking to the extent possible, in connection with the above specified aspects, which among other things, means that the NRA should to the best of its ability try to envisage development of the various aspects throughout the lifetime of the analysis. Indicators on which such predictions are based shall be as objective as possible and among other things be based on prior development on the relevant market and assessment of additional information, e.g., on rollout plans of market players and the likely trend regarding market shares.

588. During forward-looking geographic analysis, it could come to light that intra-platform competition on Market 3a is inadequate, among other things as there is an insufficient number of network operators on the market. This particularly applies if barriers to entry are also significant. Incentives for damaging collusion increase, the lower the number of network operators. Under such circumstances, a lack of wholesale obligations could lead to a lack of effective competition on corresponding retail markets to the detriment of consumers. As stated above, BEREC and NRAs in Europe have generally considered that electronic communications networks of more than one competitor of the potential SMP operator need to exist for competition to be deemed effective.¹¹⁰

¹⁰⁹ See pages 25-29 in the BEREC Common Position from 2014.

¹¹⁰ See e.g., paragraphs 122, 123, 124 and 152 in the BEREC Common Position from 2014. In the latter referenced paragraph it states: “A market characterised by only two players (e.g., the incumbent and a cable operator) may thus be deemed to be not sufficiently competitive to justify the withdrawal of obligations. As noted above, BEREC has already expressed its agreement with the economic theory on the risks of collusion derived from such market structure.” In the BEREC Opinion, BoR (13) 22 from March 2013, in connection with the review of the EU Commission of Recommendation on the relevant markets, it states among other things that it is more difficult to achieve effective competition on markets where only two electronic communications companies operate. It then

589. NRAs should also take into account those investments that could take place in the lifetime of the relevant analysis. In the light of steadily increasing roll-out of high-speed networks, certain areas, where roll-out of high-speed networks from a competitor/competitors of the potential SMP operator has not taken place when the analysis is made, could have become profitable in the future. For this reason, it could be necessary during geographic analysis to have such areas particularly in mind, as a competitor/competitors of the potential SMP operator could make an entry there during the lifetime of the analysis.

6.6.2 Access barriers by area

590. Generally speaking, varying levels of competition between areas is a consequence of variance in the degree of entry barriers, as new competitors normally make their first entry into areas with fewer entry barriers and where economy of scale is greater. On electronic communications markets, barriers to entry are normally related to economy of scale and sunk costs. Such entry barriers can furthermore result from legal factors such as granting of licences. This means that it is an option to examine economy of scale and sunk cost by geographic area with the intention of drawing conclusions on varying competitive conditions. Economy of scale is more likely to grow, the greater the demand for the service in question. Aspects related to demand are e.g., total turnover, population density and density of companies. Though, such a study could provide indications, it is unlikely that these aspects on their own or jointly, could fully explain access barriers, as they are often explained by many interacting factors, which are often not clear.¹¹¹

591. One can assume that access barriers are more common in sparsely populated and more widespread areas than in more densely populated areas, as has been manifested with the rollout of the GR fibre-optic network in the Capital City Area and further in the Southwest part of the country and that of Tengir in Akureyri and widely in North Iceland. Those areas have seen the entries of players that compete with the former monopolist incumbent. Gagnaveita Skagafjarðar (GVS) was founded in Sauðárkrókur on the initiative of utility companies in the region, but it proved not to have a basis for operating as an independent unit and was therefore sold to Mila late in 2013 when it provided service to about 400 households and 40-50 companies and the company's network then reached 650 homes and 80 companies. Despite the fact that the system was fairly large, compared with fibre-optic networks in the countryside, it had still been too small to prove to have an operational basis. The experience of GVS had been that an electronic communications company needed to have reached a specific size to be able to offer bitstream access. This was probably one of the reasons why other municipalities had not seen the advantage in taking the same route without state aid.

592. The considerable investment in civil works for cables and for in-house connections has some economy of scale when one can connect more apartments for each metre of trench or many apartments with work with in-house cabling. Such economies of scale can be reached in the most densely populated apartment building districts, but the building pattern in many of the country's smaller urban kernels is not like that. In such places, detached houses, terraced houses

states in the BEREC document in question: “ ... *the Recommendation on Relevant Markets and its Explanatory Memorandum should also recognise this fact and, consistently, provide elements to assess when, in such markets, a joint SMP position could be found, leaving it up to NRAs to decide, on the basis of its national circumstances, on the best means to address these situations.*” (PTA emphases edit)

¹¹¹ See pages 25-26 in the above specified BEREC Common Position from 2014.

and smaller blocks of flats are common, and the density and size of blocks of flats is usually less than in the Capital City Area.

593. Access to economic trunk line connections for the service that access networks need to connect to service providers, most of whom operate a core system from the Capital City Area, are also quite important in this connection. Another factor is that potential customers are fewer than in the Capital City Area and thus need to support higher costs for trunk line connections than is the case there. On 1 January 2021, the Siminn IP-MPLS network system was transferred to Mila. It is clear that no other electronic communications company in this country operates an IP transit network with national coverage, or such a network that is close to being as powerful as the Mila network in question.

594. One could therefore conclude that access barriers for new entries to the market in question were significantly greater in rural areas than urban, both with regards to fewer possibilities to leverage economy of scope in developing networks and also with regards to costs for trunk line connections to provide service across the area.

595. As was stated in Section 6.3, where there was discussion on distribution of electronic communications networks, rollout plans and network topology, in the year 2022 or 2023, more than 6,000 fibre-optic connections will have been deployed in the most sparsely populated parts of this country with the support of the Telecommunications Fund and in addition to this, a number of municipalities will have embarked on such deployment without public funding. As stated there, Mila has in recent months and years purchased such networks, leased them long-term or deployed them with a grant from the municipality in question and/or from the Telecommunications Fund and continued development is expected in this direction. Mila furthermore offers bitstream service on the vast majority of those local networks that the company has not purchased or leased (with the exception of the GR network). Given available distribution plans for parties like GR, Tengir, Snerpa and Austurljós, fibre-optic networks of Mila's competitors will probably reach about [...] % of the country's households at the end of 2023, assuming that spaces will increase by about 3,000 per annum and will become 172,000 at the end of that time, whereas the combined distribution of these companies at the end of 2020, was 74% at a national level.

596. Mila has furthermore embarked on co-investment with GR on the one hand and Tengir on the other in a number of areas (in the Capital City Area, Borgarnes, Hvanneyri, Árborg and Reykjanesbær and with Tengir at Húsavík). It is not unlikely that such cooperation could extend to other locations in the country during the lifetime of the analysis. This lessens entry barriers and reduces investment costs for further roll-out of fibre-optic local loops.

597. As is stated later in this document, in the discussion on behaviour of electronic communications companies by area, e.g., with respect to pricing, product offer etc., this difference in entry barriers does not seem to result in varying competitive conditions by area to any significant degree.

6.6.3 Number of significant competitors by area

598. A simple and often more effective method, which can also reflect entry barriers by area, is the number of competitors of the SMP operator that provide or can provide service in the relevant area or areas. It is easier to show this than to conduct the assessment mentioned here

above with respect to entry barriers, and this method furthermore shows how entry barriers really work in practice.¹¹²

599. The analysis that needs to be conducted to show the number of competitors that provide or can provide service in a specific area can vary according to the service market being examined in each instance. On Market 3a, it is those players that operate their own electronic communications network, i.e., copper and/or fibre-optic networks in the various areas.

600. It is important to have in mind that competitive conditions can also vary by area as a result of the size of such competitors, no less than as a result of their number. One method could be to only include competitors that have achieved specific market share or distribution at a national level, i.e., significant competitors. Such a method is simple to apply and at the same time excludes competitors that can only exert limited competitive pressure on other competitors. From precedence in Europe, it seems that such parties need generally to have achieved at least 10-15% market share in a given area.

601. One must consider it very unlikely that consumers and companies in this country will have access to more than two options for access to access networks provided at a fixed location and that one can assume that in many areas in the countryside it is unlikely that there will be more than one. Mila has requested the withdrawal of the universal services obligation, as fibre-optic networks under the auspices of municipalities have taken over the service provided by copper network with the increase in performance that fibre has over copper. The PTA however reiterates that Mila has been purchasing or leasing many of these local networks at many locations in the country and it is likely that this development will continue throughout the lifetime of this analysis. Mila provides bitstream service on almost all of the local networks where this has not happened (except on the GR network).

602. The Siminn group furthermore plans to decommission the traditional PSTN voice telephony system, as voice telephony using the IP protocol takes over and Mila announced its objective in the autumn of 2020, to decommission the copper system in phases over the coming 10 years. These Mila plans will therefore not in the opinion of the PTA have a significant impact during the lifetime of this analysis. With regards to these plans and to the PTA assessment of their consequences, reference is made to discussion in this analysis, among other things in Section 3.2.2.2 (Statistical information), which is a subsection of Section 3.2 (Definition of broadband access at retail level) and in Section 6.3 (Distribution of networks, distribution plans and network topology).

603. It is fairly clear that fibre-optics will replace the overwhelming majority of these copper connections, if not all, though it is not out of the question that Wi-Fi solutions could replace some of the copper connections. The roll-out of fibre-optic connections through the project, Iceland Optical Connected, makes it unlikely that there are significant business opportunities in that sector. The PTA considers that mobile network solutions, including 5G, will rather be an addition to fixed line networks than a substitute, but one may expect that a small proportion of homes/companies will settle for mobile network solutions. In the autumn of 2020, the PTA directed questions to mobile phone companies regarding likely development of building and take-up of 5G service over the coming years, but they explained that there was great uncertainty about this development. It is therefore difficult to make projections about this development, at this point in time.

¹¹² See page 26 in the above specified BEREC Common Position from 2014.

604. Widely outside the Capital City Area and larger urban clusters, one may consider it unlikely that two, and even less likely three companies will deploy fibre-optic to households and companies. It is likely that in the more dispersed regions and in smaller urban clusters, there will only be one choice. In the same way one must say that the possibility of a third-party entering the market at those locations where there are really two network operators is negligible and unrealistic. As previously stated, Mila seems to be systematically guaranteeing access for itself to the municipality networks in question, either by purchasing them, leasing them long-term, deploying them with state aid or taking over their operations or at the very least providing its GPON bitstream service through them. Taking into account the above specified future decommissioning of the copper system, it is clear that Mila is actively endeavouring to assure its future position as a nationwide network operator.

605. It is mainly GR in Southwest Iceland and Tengir in North Iceland that can be considered significant competitors to Mila on the relevant market.

6.6.4 Market share in wholesale and retail by area

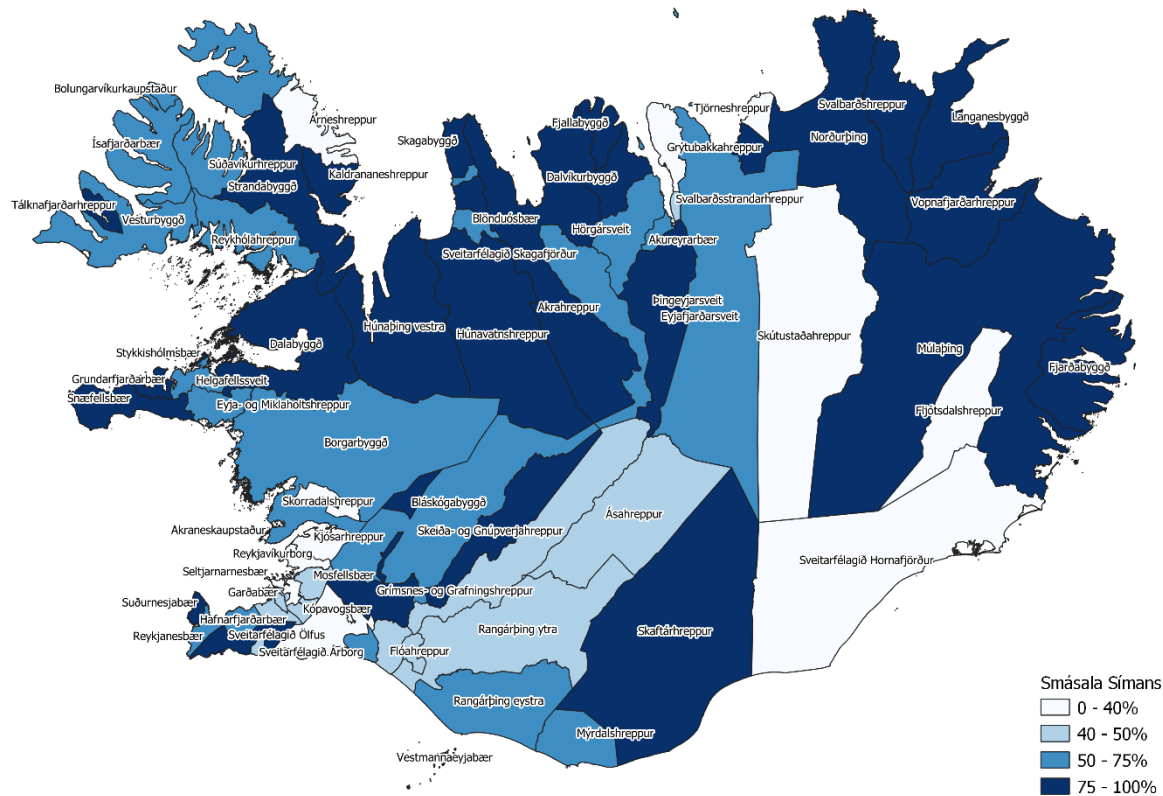
606. One method of including the size and strength of competitors by area when conducting geographic analysis, is to examine the market share of market players in specific areas. One must keep in mind that at this stage in the case, these are not “real” market shares, as the final delineation of the geographic markets is not yet concluded. It would be ideal if not only market share at a given point of time was shown, but also its development over time in order to make it possible to identify certain trends in this connection. In this context, two points in time are often enough. Should there be indications of significant changes in market share through points in time, then this can be an indication of varying competitive conditions by area.

607. As such analysis should be forward-looking, it is important that NRAs endeavour to assess future development of market share during the lifetime of the analysis, and whether the deviations that have been identified from the current and historical market shares are likely to increase, decrease or remain relatively stable. It could for example be helpful to categorise areas on the one hand into those areas where the market share of the potential SMP operator is high and stable or only decreases slowly, and on the other hand, areas where this operator’s market share is low and stable or is declining.

608. The PTA has therefore collected data on the retail and wholesale market for connections provided at a fixed location, where the data has been divided by municipality over five points in time, i.e., 30 June 2018, 31 December 2018, 30 June 2019, 31 December 2019 and 31 December 2020. Data has been collected on retail share in Internet service, on wholesale market share on the markets in question and on deployment of networks, both networks owned by Mila and by others, and also on the adoption of service on each network. Data has been collected in this manner, on the number of customers in each municipality and on the network through which the service is provided. The conclusions of this data collection are shown graphically here below, as of the status at the end of 2020.

609. As was done here previously in the analysis, the first step will be to define the competition on the retail market. In accordance with the main principle in competition law, that when a company’s market share exceeds 50% there need to be very good reasons for the company in question not to be deemed to have a dominant position, the PTA has analysed market shares by municipalities in accordance with that criterion. It should furthermore be noted that there

are many examples in competition law where a market share in the range of 40-50% has been considered sufficient to come to the conclusion that a party has market dominance if other appropriate aspects that have been examined support this conclusion.



Source: Post and Telecom Administration

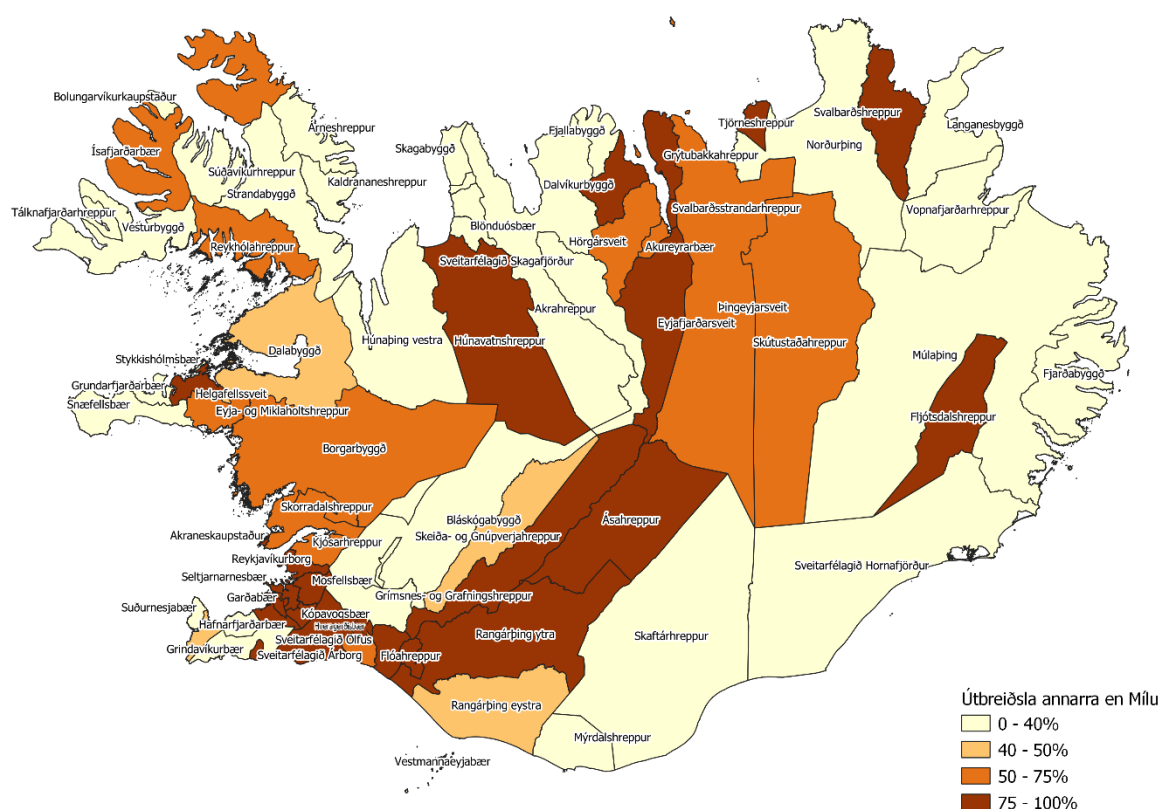
610. It comes to light that Siminn enjoys over 50% market share broadly throughout the countryside and it is mainly at locations where parties other than Mila offer active service over fibre-optic, where the Siminn share is below the above specified criterion. Siminn is however making gains in some locations, e.g., Siminn had less than 40% share in Ásahreppur in South Iceland and in Akrahreppur in Skagafjörður at the end of 2018 but now has over 40% at end of year 2020. Conversely, in the Ölfus municipality, Siminn had over 40% at the end of 2018 but was under that figure at end of year 2020.

611. When the distribution of networks owned by parties other than Mila is examined, the situation is uneven across the country. In the Capital City Area and at Eyjafjörður and various locations in the Tengir distribution area in North Iceland, distribution of fibre-optic networks is now substantial. One could also name Hveragerði, Árborg, Hella, Hvolsvöllur, Reykjanesbær, Akranes and Borgarnes in the Southwest corner of the country in this connection. There are furthermore urban kernels in the West Fjords where Snerpa has deployed a fibre-optic network, particularly in Ísafjarðarbær, and also at Egilsstaðir in East Iceland, where Austurljós has deployed a fibre-optic network. In municipalities in the countryside with few inhabitants, that have received state aid from the Telecommunications Fund in connection with the project Iceland Optical Connected and where there is no urban kernel within the municipality, there is also significant distribution of networks other than those owned by Mila.

often close to almost 100% when all registered farms are connected in connection with that project. In such municipalities, connections are generally a few tens or 100 at most.

612. In other municipalities that have received funding because of market failure in sparsely populated areas, the urban kernel often has VDSL service from Mila and Mila share in the distribution is therefore still high in the municipality as a whole. In recent years, Mila has however in addition to its vigorous fibre-optic rollout in the Capital City Area and widely in the Southwest corner of the country, been rolling out fibre-optic in various urban kernels in the countryside, with or without state aid, purchasing or ensuring long-time control over such networks, such as in Súðavík, Blönduós, Skagaströnd, Sauðárkrúkur, Hofsó, Akureyri, Húsavík and Egilsstaðir. The PTA expects this development to continue throughout the lifetime of the analysis. On 9 February 2021, Mila announced the commencement of fibre-optic rollout in part of the Westman Islands in the year 2021.

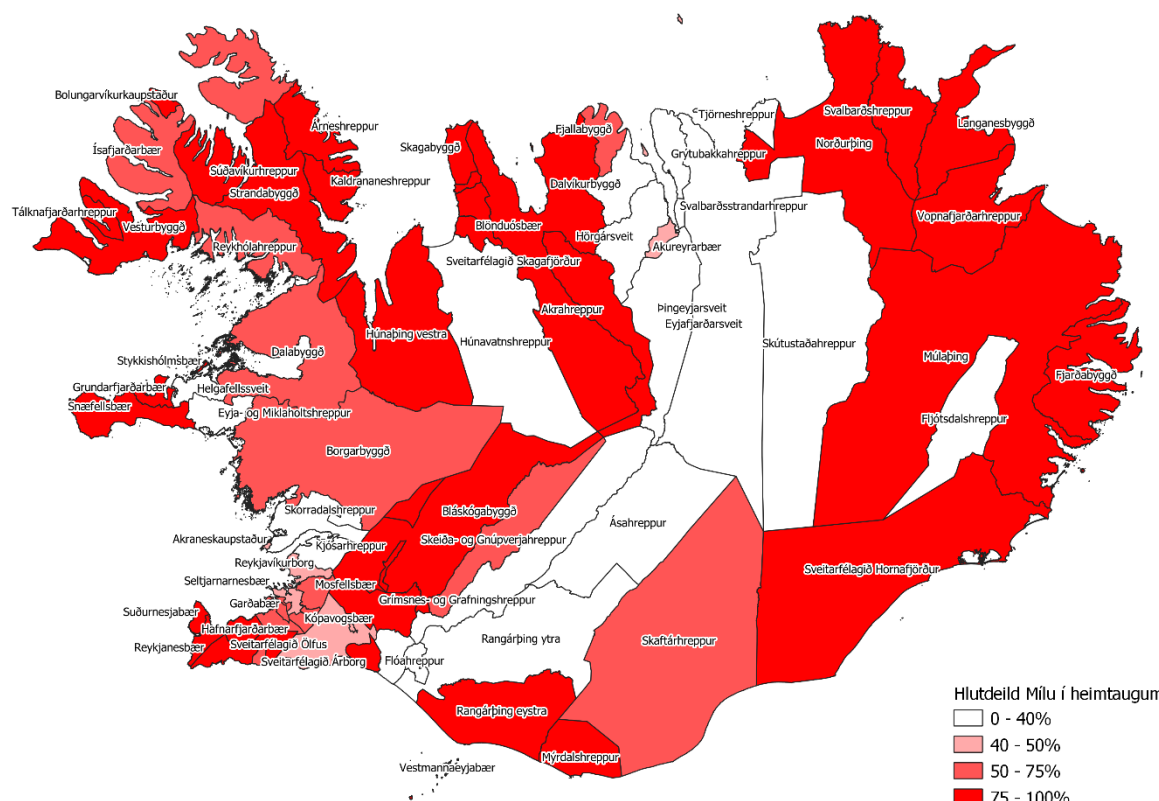
Figure 6.7 Distribution of local loop networks other than those of Mila, by municipality at end of year 2020



Source: Post and Telecom Administration

613. Although a network may have significant distribution among households and companies in a municipality, this does not necessarily mean that adoption of service will follow. But when households and companies have limited service on older networks than fibre-optic, there is a significant incentive for customers to change the network through which they receive the service. For this reason, the PTA has also examined market share in local loop lease by municipality. Then it comes to light that it is precisely in such municipalities where a fibre-optic network replaces a limited copper network that Mila share has become low in wholesale of local loops.

Figure 6.8 Mila market share in wholesale of local loops at end of year 2020, by municipality



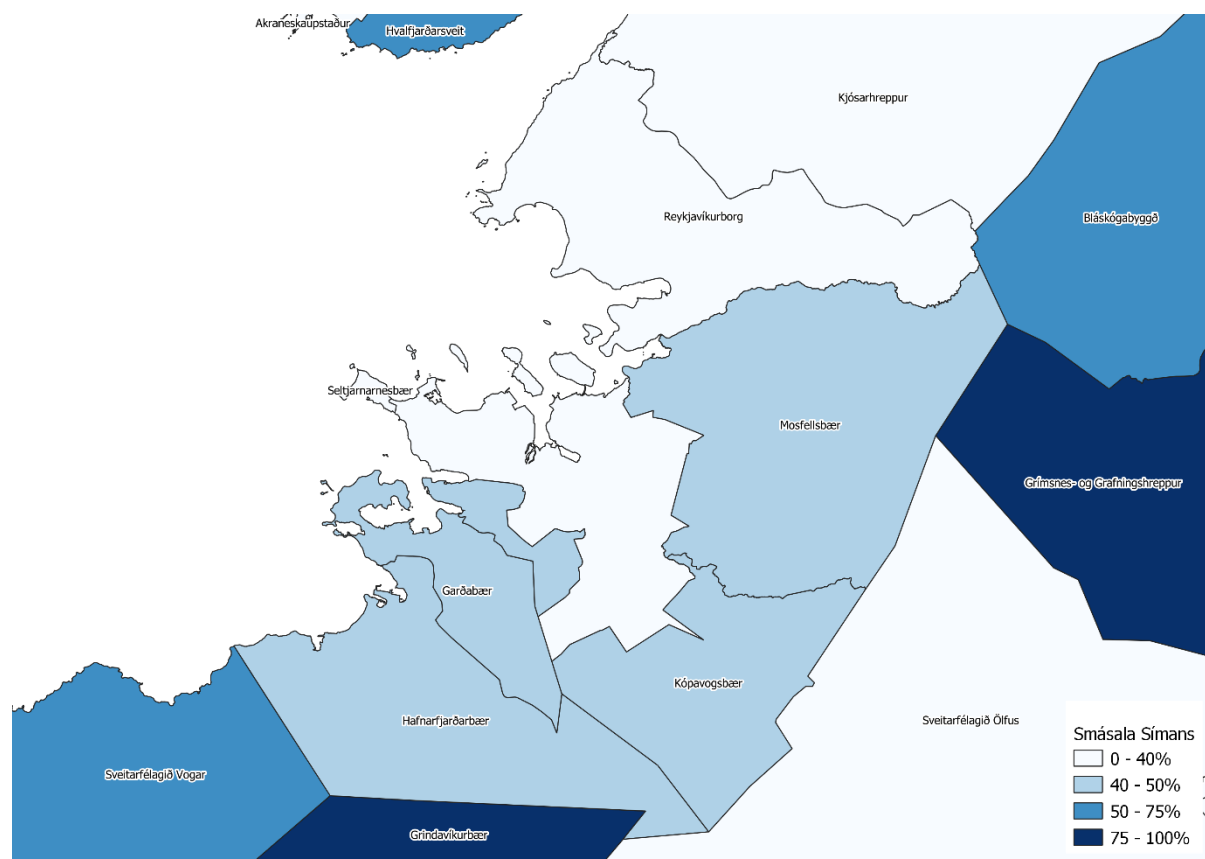
Source: Post and Telecom Administration.

614. The PTA considered it necessary to make a special examination of the Capital City Area. The situation there is that the Siminn retail share is such that at the end of 2020 it was below 40% in Reykjavík ([...])% and between 40 and 50% in other municipalities, except Seltjarnarnes and highest in Garðabær at [...]. Seltjarnarnes is the municipality where GR has operated longest. It was there that most was done in connecting households, as GR connected in-house cables and installed fibre-optic endpoint equipment in all households in the municipality. This project was completed in 2007, which means that there is more than a 13-year history of full deployment of the fibre-optic network in that town in competition with first Siminn and then Mila after it came into existence as a separate company. In Seltjarnarnes the Siminn share was [...]% at the end of 2020. More specifically, Siminn's market share was [...]% in the Capital City Area at the end of 2020 and [...]% in the whole of GR operational territory. Corresponding figures for end of year 2018 were [...]% in the Capital City Area and [...]% in the whole of GR operational territory. Figure 6.9 here below shows the Siminn share in the Capital City Area. The Siminn market share has therefore not changed significantly in the Capital City Area during these two years.

615. When the GR operational territory is viewed as a whole, which means the municipalities of the City of Reykjavík, Kópavogsbær, Seltjarnarnesbær, Garðabær, Hafnarfjarðarkaupstaður, Mosfellsbær, Reykjanesbær, Akraneskaupstaður, Borgarbyggð, Rangárþing Eystra, Rangárþing Ytra, Árborg, Hveragerðisbær og Sveitarfélagið Ölfus it comes to light, as stated above, that the Siminn share in retail Internet service in the area was [...]% at the end of 2020. Only in the City of Reykjavík [...], Seltjarnarnesbær [...], Hveragerðisbær [...] and in the Ölfus

municipality [...] is the Siminn share less than 40%. As previously stated, the Siminn market share at the end of 2020, was 46.3%.

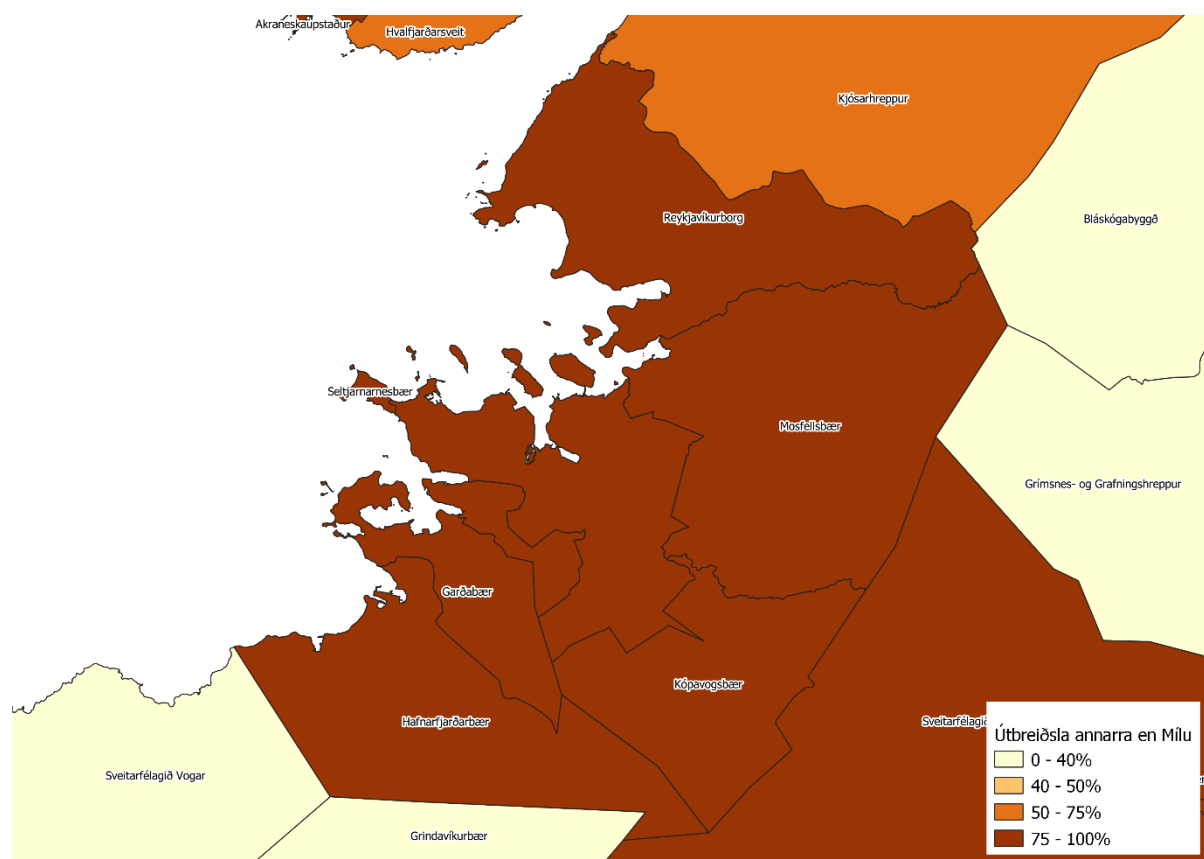
Figure 6.9 Siminn retail share in the Capital City Area at end of year 2020



Source: Post and Telecom Administration.

616. In the Capital City Area, GR has now expanded its local loop network to cover nearly all households and companies, as can be seen in the below specified figure 6.10. This means that the distribution of local loop networks of parties other than Mila is no more than 90% in all municipalities in the Capital City Area, where GR has now to all intents and purposes, achieved full distribution to households in the area, but there is still work to be done by the company in corporate connections.

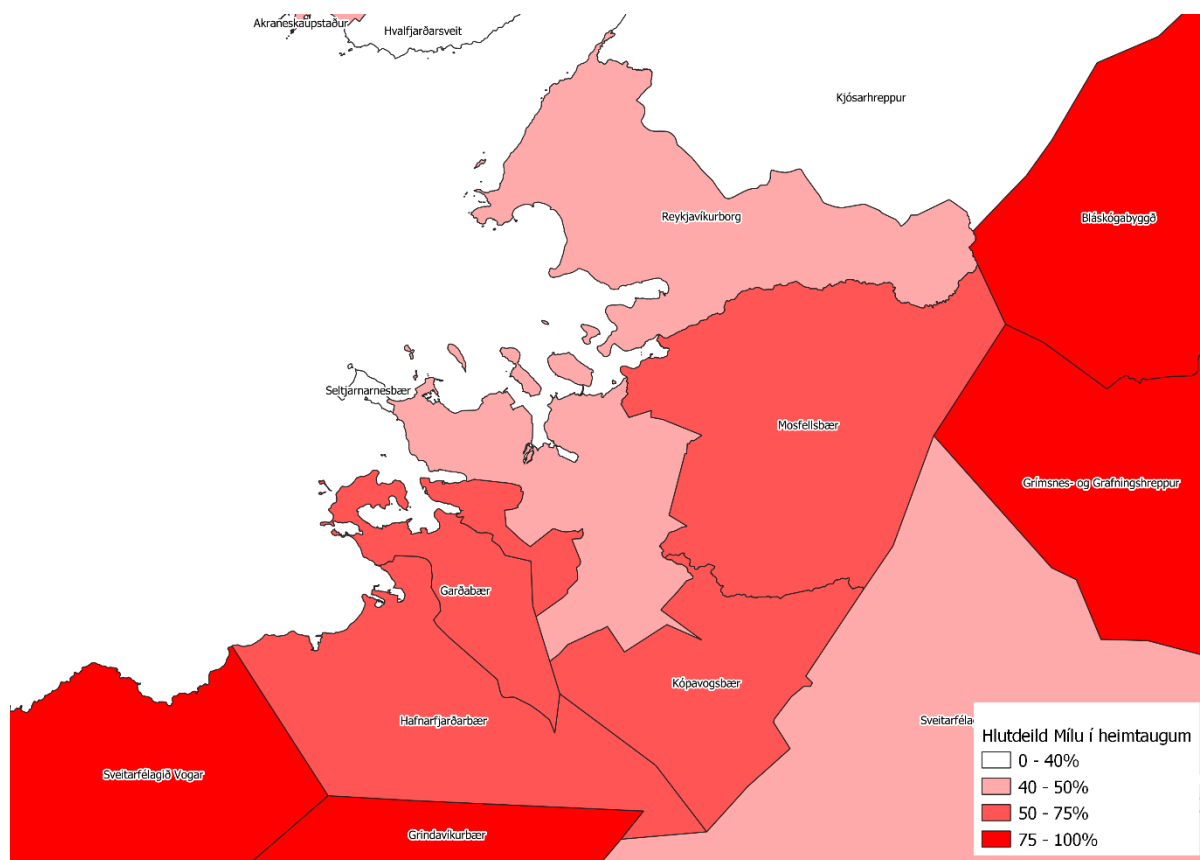
Figure 6.10 Distribution networks other than those of Mila in the Capital City Area at end of year 2020.



Source: Post and Telecom Administration.

617. As previously described, a share of over 40%, is often considered a strong indication of a company's market dominance in competition law, particularly if other factors than market share support this, and it is almost certain that this is the case if the share is over 50%, unless special circumstances indicate otherwise. In figure 6.11, one can see that at end of year 2020, Mila had over 40% share of the wholesale market for local loop lease in all municipalities in the Capital City Area, except in Seltjarnarnes where it was slightly under 40%.

Figure 6.11 Mila share in wholesale of local loop lease in the Capital City Area at end of year 2020



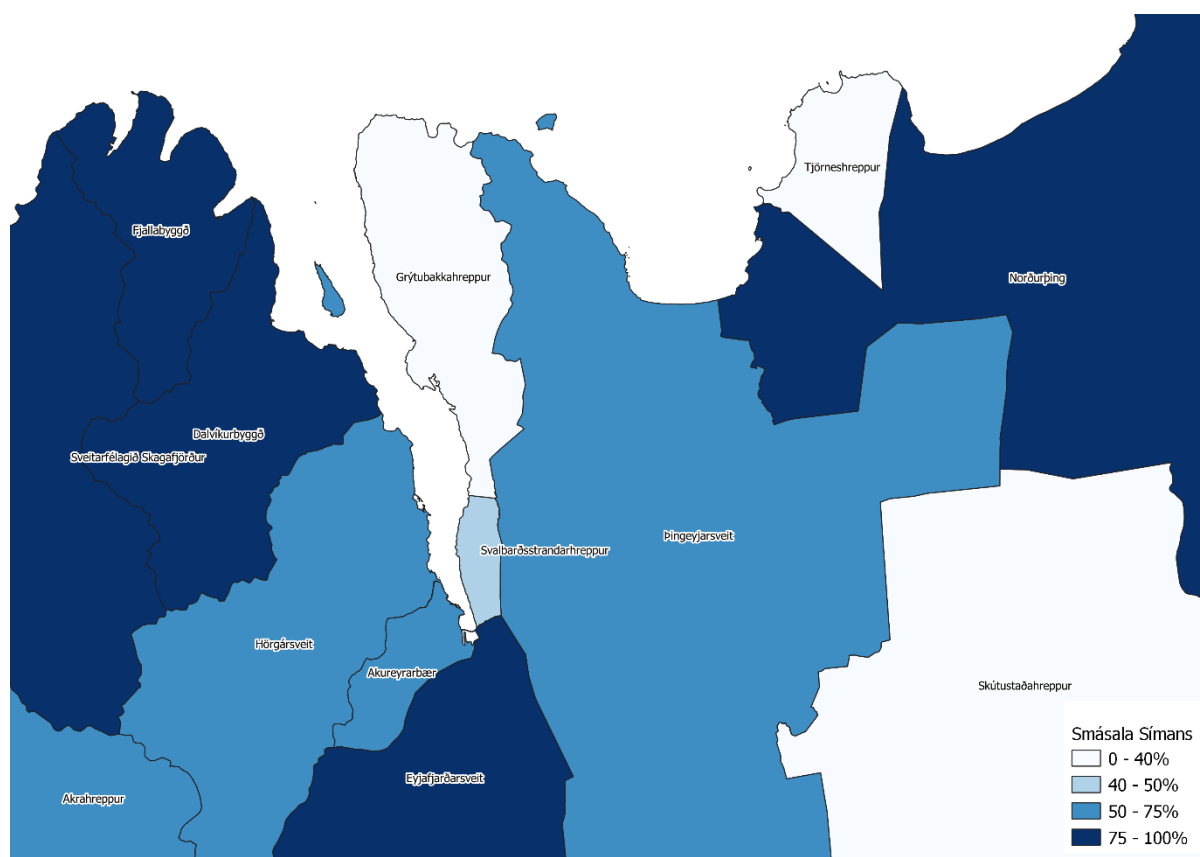
Source: Post and Telecom Administration

618. As previously stated, Siminn and GR agreed on Siminn's bitstream access to GR's fibre-optic network in July 2020. On 25 August 2021, Siminn began to provide its services via the GR network. The agreement states that at least [...] % of Siminn's customers will be on GR's network within [...] years, i.e., [...] customers compared to Siminn's current customer group. Based on information obtained by the PTA, it is likely that Siminn's customers on GR's network will be around [...] by the end of 2022. It can be assumed that those customers will consist of both Siminn's customers who have been on the Mila network as well as from customers who have been on the GR network but have been customers of Siminn's competitors. The PTA expects that this proportion will be [...] until throughout 2021, but after that they will be [...] % from the first group and [...] % from the second group. It can therefore be expected that Siminn will significantly strengthen its position in GR's operating area throughout the lifetime of this analysis, especially in Seltjarnarnes and Reykjavík, where Siminn's market share was somewhat lower at the end of 2020 than elsewhere in the capital area or in the GR area as a whole. Siminn's market share was [...] % in Seltjarnarnes and [...] % in Reykjavík at that time, while it was [...] % elsewhere in the Capital City area and up to over [...] % in some places in the GR area. On average, Siminn's market share was around [...] % in the entire GR area. The PTA assumes that Siminn's market share will have reached about [...] % by the end of 2020 in the GR area, of which about [...] % in both Reykjavík and Seltjarnarnes, all other things being equal. Moreover, the PTA assumes that Siminn's market share nationwide will exceed [...] % at this point. PTA can see no indications that the Siminn share will decrease for

some reasons during the lifetime of the analysis, which would counteract this probable development resulting from Siminn entry to the GR fibre-optic network.

619. In the operational territory of Tengir, the position is not entirely analogous to the position of GR in the Capital City Area as Tengir distribution to households and companies was about 75-90% at the end of 2020, while GR has over 90% and up to 100% distribution in the Capital City Area. In Eyjafjarðarsveit, Tengir has nevertheless over 85% distribution, but under 75% in Hörgársveit.

Figure 6.12 Siminn retail share in the main Tengir operational territory at end of year 2020



Source: Post and Telecom Administration.

620. Tengir has for a long time leased dark fibre local loops to Mila, where Mila has developed active GPON bitstream service. The Siminn retail share is generally quite high in the Tengir operational territory, about [...] % on average at the end of 2020. In a number of sparsely populated municipalities, it was however lower than [...] % at this time, and they are Grýtubakkahreppur [...] %, Skútustaðahreppur [...] % and Tjörneshreppur [...] %. The Siminn market share in the very sparsely populated Fljótsháshreppur in East Iceland, where Tengir operates bitstream equipment on the municipality's fibre-optic network, is on the other hand only [...] %, but there the local loops only number a few tens. Siminn has more than 40% market share in 57 municipalities of 69 and over 50% in 48 municipalities.

621. Mila wholesale share of local loop lease is at many locations under 40%, but it is over 50% in the Tengir operating territory. Share in bitstream lease is however higher because of

the Mila local loop lease with Tengir, but this will be examined in more detail in Section 7. As a result of the modest Tengir distribution plans in coming years and potential, Mila fibre-optic rollout in Tengir operational territory, including in Akureyri, the PTA considers that this position will not change significantly during the lifetime of the analysis.

622. The Mila market share on the relevant market was [...] % in the Snerpa operating territory in the West Fjords at the end of 2020. Given rather modest Snerpa distribution plans for the coming years, the PTA considers that this situation will not change much during the lifetime of the analysis, although Mila market share may decline somewhat.

623. According to PTA data, there has not been a significant change to market share at the retail or wholesale levels within individual municipalities during the above specified 30-month period. The Mila market share has however widely been on a slow decline. Where local fibre-optic networks have been taken into operation, shares have changed quite rapidly at some locations, but there the customers are so few that the shifting of a few customers had considerable impact on shares in the relevant municipality, but negligible nationwide.

624. At the end of 2020, Mila market share at national level on Market 3a was 57% after having been 83% at the end of 2013. The reduction in market share has thus only been about 3.7% on average during these 7 years, but as stated before it was significantly high at the end of 2013. The Mila market share varied somewhat between municipalities on the relevant market at the end of 2020, see the table below which shows Mila market share in each of the country's 69 municipalities:

Table 6.2 Mila share in local loops by municipality at end of 2020
[...]

625. In July of 2020 Siminn and GR entered into a contract for Siminn's bitstream access to GR's fiber network. On the 25th of August 2021 Siminn begun offering service over GR's network. The contract stipulates that at least [...] % of Siminn's customers of internet service shall be on GR's network within [...] years of service commencing, i.e. about [...] customers according to Siminn's present customer base. PTA has forecasted the effect of this contract on Mila's market share using these premises and likely development according to PTA. The forecast assumes that Siminn's customers on GR's network will number [...] at the end of 2021 and about [...] at the end of 2022. It can be assumed that those numbers will consist of both current customers of Siminn that previously have been on Mila's network and customers of Siminn's competitors currently on GR's network. PFS assumes the proportion of each group will be [...] in 2021, but [...] % from the former group and [...] % from the latter group going forward. Therefore, it can be expected that Mila will lose some market share in GR's operating area during the lifetime of this analysis, especially in Seltjarnarnes and Reykjavik, but there Mila's share is currently lower than elsewhere in the Greater Reykjavik Area or in GR's area as a whole. Mila's share in local loop line rental was [...] % in Seltjarnarnes at the end of 2020 and [...] % in Reykjavik at the time but [...] % in the whole of GR's area. PTA forecasts that Mila's share in local loop line rental will be [...] % at the end of 2024 in GR's whole area as it currently is, about [...] % in Reykjavik and [...] % in Seltjarnarnes, everything else being equal. In this period PTA forecasts that Siminn's share of retail internet access services will markedly strengthen, especially in Reykjavik and Seltjarnarnes.

626. The PTA considers that Mila market share on the relevant market will decline somewhat during the lifetime of this analysis at national level but will in all likelihood continue to be over

50% at the end of 2023. In this context, it is taken into account that a number of Siminn customers will move from the Mila network to the GR network, though Siminn will without doubt also gain a significant number of customers of its competitors that are already on the GR network. The decommissioning of the PSTN voice telephony service and the first steps in the Mila 10-year plan for decommissioning the company's copper network could have a small impact during the lifetime of the analysis such that the Mila share would decline. Given the modest deployment plans of electronic communications infrastructure companies apart from Mila and Mila's ambitious deployment plans for the coming years, the PTA considers that the decline in Mila share on the relevant market will decelerate during the lifetime of the analysis when compared to the last 7 years, which was a period when GR among other things, conducted rapid fibre-optic development which now appears to be much less rapid and will probably be that way in the coming years. As is understandable, deployment of fibre-optic local loops commenced in the most economic areas where the number of residences at each address was most, which means that new locations become increasingly less economic as rollout progresses. This is likely to have the effect that continued deployment will decelerate. For this reason, the PTA considers it likely that the Mila market share will be in the range of 50-52% on the relevant market at the end of 2023. This is with the reservation that large customers of GR, such as Vodafone, do not increasingly switch from the GR network over to the Mila network, [...]. If this should prove to be the case, the situation could change significantly, strengthening Mila and weakening GR.

627. This furthermore means that Mila market share is likely to decrease somewhat in those municipalities where an alternative electronic communications infrastructure company is in place, particularly where new civil works will be implemented during the lifetime of the analysis, while remaining unchanged where Mila is the only party offering electronic communications infrastructure. As in PTA's opinion, there is no reason to segment the market geographically in this country, it is however the situation at national level that is most important in this context.

6.6.5 Pricing and possible price difference in wholesale and retail by area

628. Another important criterion when identifying whether competitive conditions may be variable between areas is the possible price difference between them at both retail level and wholesale level. If pricing of the potential SMP operator and pricing of his competitors are the same or similar across the whole country, i.e., not significantly variable between areas within the companies in question, this could provide indications that competitive conditions are not sufficiently heterogeneous between areas to justify segmented geographic markets or varying obligations by geographic area. This on its own does not however, always have to be the reality, as from the point of view of consumers, there could be a significant difference between "competitive areas" and areas where limited or no competition exists, despite the fact that the potential SMP operator's prices are the same across the country.¹¹³

629. The reason could be that when the potential SMP operator sets the same price across the whole country, with the objective of maximising profit, he has to find a balance between pricing where he has a monopoly position (dominant position) and lower prices where he is in competition with other players on the market. The likely conclusion is a compromise between these two prices, as the price is lower as the "competitive area" is larger. If the "competitive

¹¹³ See pages 27-28 in the above specified BEREC Common Position from 2014.

area” is sufficiently large, the pricing of the potential SMP operator should be rather low, and in addition to this the price difference between him and his competitors should be small. Under such circumstances, it would be justifiable to conclude that the geographic market is the whole country because of widespread common pricing constraint. In those instances where the “competitive area” is on the other hand, small, the “monopoly price” has more weighting in the pricing decision of the possible SMP operator and there can thus be a significant difference between his price and that of his competitors. This probably leads to a situation where the potential SMP operator has a low market share in “competitive areas”. This means that consumers could perceive a significant price difference. While consumers can only purchase relatively expensive service from the potential SMP operator in areas where there is little or no competition, a relatively large number of them can purchase less expensive service from the competitors in the “competitive areas”. In such instances, considerations about margin squeeze cannot be good arguments for having the country as one geographic market, despite the fact that the potential SMP operator maintains equal prices across the whole country.¹¹⁴

630. Another aspect that NRAs must keep in mind when they examine pricing in geographic analysis, is that uniform pricing does not necessarily indicate that the country is one geographic market if the pricing is the consequence of obligations subsequent to the designation of an undertaking as having SMP. The discussion here above applies first and foremost to instances where the potential SMP operator prices his product in the same manner across the country entirely and of his own free will or where he is obliged to do so in another manner than subject to such obligations. If the uniform price across the country is the conclusion of obligations that were imposed subsequent to market analysis on the market being examined, the NRA in question must predict what the position would be if the obligations were not in force (modified greenfield approach).

631. If the potential SMP operator does not maintain uniform prices across the country, this could give strong indications that differing competitive conditions exist between areas. This gives an indication that competitive pressure is greater in those areas where prices are lower. Price difference can however also reflect varying underlying costs by area. The relevant NRA must therefore, under such circumstances, assess whether the price difference results first and foremost from differing underlying costs or differing competitive conditions by area, or both.¹¹⁵

¹¹⁴ See e.g. page 29 in document Cave, M., Stumpf, U., Valletti, T: A review of certain markets included in the Commission’s Recommendation on relevant markets subject to ex ante regulation, from 2006, states among other things: „ ... *absent SMP regulation, a firm with market power subject to a uniform pricing constraint chooses a profit-maximizing price based on its demand curve in the universal service area as a whole rather than the distinct demand curves where it faces different levels of competition. As a result, constraints on its behaviour in competitive areas are not extended to less competitive ones, but constraints across all areas are averaged or pooled. If the resulting price contains excess profits, because of a large weight of non-competitive customers, rivals in competitive areas will either force possibly localized price cuts by the incumbent – if they are allowed – or will enjoy considerable competitive advantage. In either case conditions of competition will differ.*”

¹¹⁵ In the above specified Decision by the EU Commission from 7 February 2020 in the case of Sweden, which was described in detail here above, it was stated that Telia collected the same price across the country for access through fibre-optic to single unit dwellings on Market 3a. The company’s fibre-optic network however only reached 37% of the population. On the other hand, the wholesale price for connections to multi-unit dwellings varied by area. This difference seemed, in the opinion of the PTS, to be based on density of dwellings and varying deployment costs. Local networks had a tendency to price wholesale access in accordance with costs and only to a limited extent according to pricing by Telia. The prices of local networks in instances of connections to multi-unit dwellings were anything from under SEK 500 and up to over SEK 4,000, while to single unit dwellings they ranged from SEK 140 to SEK 220 for each such unit. The Commission agreed with BEREC in that case that

632. Another aspect that needed to be examined is whether prices are comparable or variable between the potential SMP operator and his competitors.

633. It is important to examine pricing and possible price differences, both at wholesale and retail level. In the opinion of the PTA, pricing at retail level has certainly no less weighting in pricing than at wholesale level in this assessment as that is the price that the consumers experience.

634. If prices are variable between areas, this does not necessarily mean that the market should be automatically segmented in accordance with such price difference of the potential SMP operator. The problem with such an approach was that the potential SMP operator could then have a direct impact on geographic definition of the relevant market, including segmentation of areas, and/or price difference could change at any particular time in accordance with his pricing policy. It is therefore more appropriate to examine the reasons for variations in pricing, i.e., whether they result first and foremost from varying competitive pressure between areas or issues such as operational costs, deployment costs, economy of scale and population density.

635. In general, the above specified analysis of pricing at wholesale level should be directed at the market being analysed in each instance. On the other hand, information on pricing on wholesale markets is not always readily available and it can be difficult to acquire such information. In such instances it could be useful to examine pricing on corresponding retail markets when analysing the relevant wholesale market. When such is not appropriate, the NRA should place greater emphasis on other criteria that need to be examined. Despite the fact that an NRA could encounter problems when conducting a detailed analysis of pricing, it can nevertheless be possible to examine whether market players could or were likely to use varying pricing by area or whether market players that offered their services solely in a specific area or areas, priced their service in a significantly different manner compared to that of the SMP operator.

636. It was stated in the above specified BEREC Common Position from 2014, that, if possible, development of pricing and or price difference over time should be analysed. On specific markets, it could also be appropriate to examine pricing in connection with quality or characteristics/attributes of the service, but such aspects could also vary between areas.

637. At retail level, it is not possible to identify any price difference by area with Siminn. The same can be said about competitors of Siminn at retail level. Then there is no significant price difference between Siminn and the company's competitors in Internet service at national level as was covered in Section 3.1.2 here above. The PTA considers that these are very strong indications that there is no need to segment geographic markets in this country, as consumers here experience no difference in this respect.

638. Mila has however pointed out that in the GR operational territory, set-up of Mila household connections for fibre-optic local loops is without charge, but elsewhere it is at the

comparable prices across the whole country were not, in isolation, sufficient arguments for the geographic market being the country as a whole, particularly if such comparable prices only reached 37% of the wholesale market in question as was actually the case in Sweden. With regards to pricing criteria, it was also necessary to assess prices of parties other than Telia. The PTS had not succeeded in demonstrating that prices of the local networks were comparable with those of Telia. On the contrary, PTS had identified a difference between wholesale prices of the various local networks. In the light of the above, the Commission issued an opinion to the effect that homogeneity in access prices on Market 3a for fibre-optic did not exist in Sweden. The PTS arguments to this extent were thus inadequate to come to the conclusion that the geographic market should be the country as a whole.

expense of users. This appears to be the only price difference that users experience between areas. In the opinion of the PTA, it is not a tipping point with respect to whether the wholesale market in question should be defined geographically or not, that Mila on-site service is less expensive in the immediate environment of the company's operational sites, when the service market is the whole country. This is a one-off cost and a large part of increased cost in the countryside is per diem and other additional costs for travelling in the countryside, where distances are important. There are therefore clearly cost considerations that apply in this instance. This does not apply to the Akureyri area, where there is however, competition from Tengir, as costs there are higher for Mila as that area is not in the immediate environment of the company.

639. In addition to this, the PTA considers that this one-off cost is not high in the light of the fact that the average lifetime of the contractual relationship with the consumer is likely to be counted in years rather than months. PTA's sister institutions have in some instances come to the conclusion that such average lifetime is 60 months. It could easily be longer than that when it relates to the underlying carrying layer, than when switching service provider on the same carrying layer. The consumer survey that the PTA commissioned in the autumn of 2020 also indicates that Siminn customers are less likely to switch service provider than customers of other service providers.

640. One reason for this could also be that the Mila VDSL system is good in the greater Capital City Area and in Akureyri, where among other things, vectoring is offered, and for this reason Mila could consider that the collection of a connection charge could delay transfer of customers from the Mila copper network to the company's fibre-optic network, which is Mila's long-term objective. Though it is possible to achieve synergy with other Mila operations in the Capital City Area when implementing these connections, this does of course involve some costs. This cost is in some way collected for these local loops, and one could assume that it is collected with monthly charges in the greater Capital City Area. When one has calculated connection cost and start-up cost, as presented in the Mila tariff, into the monthly charge, then the Mila price areas are in fact 3, i.e., the greater Capital City Area, Akureyri and the countryside. The cheapest is in the area where the costs are lowest. One may also point out that a sizeable proportion of fibre-optic local loops owned by Mila in the countryside were purchased after having been connected to homes, which means that it is not in all instances that a connection charge is collected in the countryside.

641. Mila pricing of fibre-optic service varies by area at wholesale level, i.e., both for fibre-optic local loops (Market 3a) and for Access Options 1 and 3 (Market 3b). The following table shows Mila monthly prices for fibre-optic service (ex VAT):

Table 6.3 Mila monthly price for fibre-optic service

Area	Fibre Local Loop to Homes	Fibre Local Loop to Companies	Access Option 1	Access Option 3	Fibre Local Loop to homes with A1
Capital area and Akureyri	2,120 ISK	5,050 ISK	960 ISK	1,337 ISK	3,080 ISK
Rural	2,480 ISK	5,350 ISK	1,600 ISK	1,977 ISK	4,080 ISK
Difference in %	17%	6%	67%	48%	32%

642. As can be seen in the table, the Mila monthly prices are higher in the countryside than in the Capital City Area and Akureyri. The price difference for fibre-optic local loop to the home is 17% between the areas in question, the price difference for bitstream service over Access Option 1 is 67% between the areas in question and 48% for Access Option 3. Then the price

difference for fibre-optic to companies is significantly less between areas, that is to say only 6%.

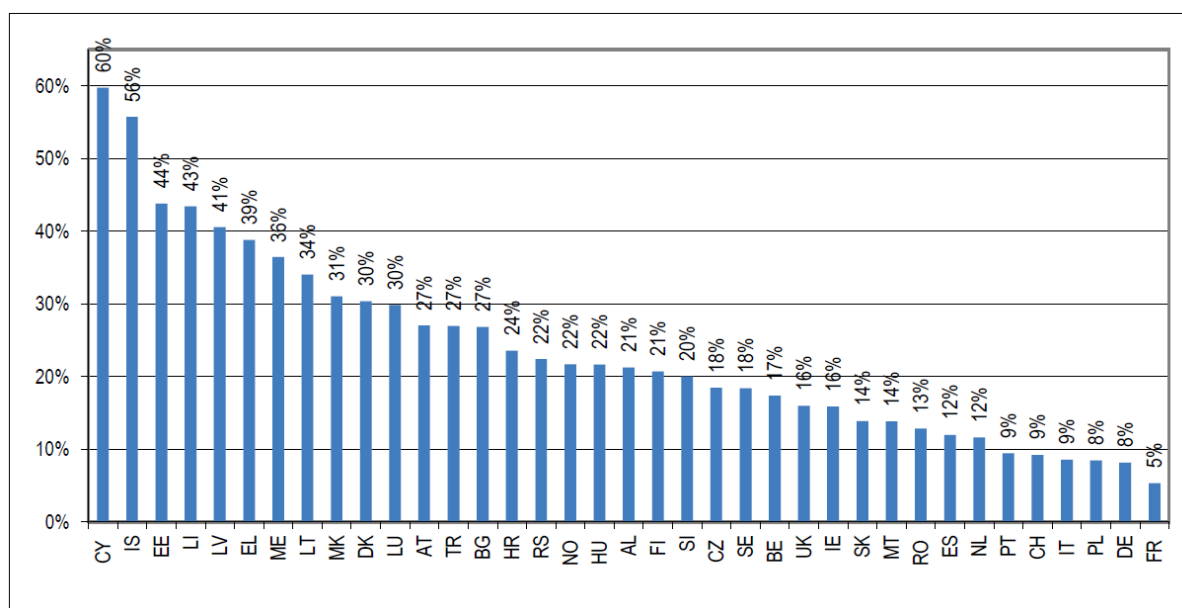
643. One must take into account that Mila PON local loops are generally not sold without bitstream (GPON), but the product is rather in the vast majority of cases provided with bitstream, often on Access Option 1 (A1). According to information from Mila, dated 11 December 2020, there were only [...] Mila fibre-optic connections sold without bitstream which represents [...]% of Mila leased local loops, on the basis of the number of local loops leased by the company at the end of June 2020. It is therefore in the opinion of the PTA more reasonable to take into account development of the price of local loops with bitstream (most often in Access A1), as this is the product that Mila's customers use in most instances, i.e., about [...]% of instances. When that is done, it comes to light that the price difference between areas is 32%.

644. In a Mila email reply, dated 22 September 2020, to a PTA query, dated 7 September 2020, with respect to why the price difference between urban and rural areas for Mila fibre-optic on Market 3a was 17%, and about 67% on Access Option 1 on Market 3b, it was stated that it was only four years since Mila had begun to offer the service to any significant degree and that the service and its distribution were still in continuous development, particularly with respect to distribution and use of investments related to this service. On the other hand, there was a fact that Mila installed ONT at its own cost, regardless of where in the country the service was offered. By the nature of things, it was significantly more expensive to visit customers in the countryside, not least customers on countryside networks that had been deployed in rural areas in connection with the project Iceland Optical Connected. Installation of ONT was part of bitstream service. This factor weighed heavily in the reasons for A1 service being more expensive in locations other than in the Capital City Area and Akureyri.

645. It was then stated in the above specified reply from Mila, that in connection with the percentage difference between fibre-optic and bitstream in the Capital City Area and Akureyri on the one hand and the countryside on the other, the main reason was that usage of fibre-optic cables was much better than usage of bitstream equipment. In this way, there were many more connections on each GPON installation in the Capital City Area than in the countryside. Most of those who received fibre-optic would start to use it immediately or within a few years.

646. A unique characteristic of Iceland is that a large part of the population lives in the three largest urban areas, as can be seen in the following graph which shows a comparison with other European countries:

Figure 6.13 *Number of residents in the three largest cities as a proportion of total population*¹¹⁶



647. Furthermore, Iceland has the smallest population density of these countries. Apart from the Capital City Area and Akureyri, communities are sparsely spread, and urban clusters are small. Investment and operational costs for local loop system are much greater in sparsely populated communities than in urban communities. In the opinion of the PTA this price difference in Mila fibre-optic service can be explained first and foremost by varying costs for development and operation of electronic communications networks in these areas, and by less population density and economy of scope, rather than by varying competitive pressure between areas. It however doubtless has an impact on Mila pricing that the Capital City Area and Akureyri and its neighbourhood are also the areas where other electronic communications companies have mainly invested in fibre-optic local loops on market terms, i.e., GR and Tengir. In these areas, Mila is investing in fibre-optic where another fibre-optic system exists. It is normal that other electronic communications companies invest first and foremost in the most profitable areas, i.e., in the most densely populated locations.

648. With respect, to the difference in unit prices of fibre-optic local loops between areas on the Mila tariff, it has been stated by Mila, among other things in the company cost analysis, that costs are higher in the countryside. This is among other things confirmed by Mila in the company's reply, dated 22 September 2020, to a query from the PTA dated 7 September 2020, specifically with respect to Market 3b, where price difference with respect to that service is much greater between the Capital City Area and Akureyri on the one hand and other areas on the other than is the case for Market 3a, where the price difference is only 17%. There is also the fact that all state aid for rollout of fibre-optic networks in the countryside is because of this difference in cost in deploying and operating fibre-optic. It is also clear that the number of spaces/dwellings at each address is significantly more in the most populated parts of the country, as there are more multiple dwelling buildings when compared with smaller urban areas and rural areas. The number of spaces at each address has a significant impact on unit costs. If the cost of investments and operation of fibre-optic local loops were analysed for each area in

¹¹⁶ BoR (18) 215 BEREC Report Regulatory Accounting in Practice 2018.

the country, it is likely that there would be a cost difference between areas, which means that the cost difference between areas for Mila, between the two most densely populated areas of the country on the one hand and smaller urban areas and rural areas on the other, can be explained to a large degree or entirely by varying costs. It is then clear that for new parties, that do not have the same economy of scale as Mila, it is normal that they begin by showing an interest in development where population density is at its highest. This means that competition begins where it is most economic to deploy fibre-optic local loops.

649. The fact that the Mila price for access to fibre-optic local loops is not the same in the most populated areas of the country and elsewhere in the country furthermore indicates that competitive conditions differ there to some extent. It is however clear that there are convincing cost arguments for collecting differing prices in these areas as has been stated by Mila. In the opinion of the PTA there are no definitive indications that these areas are significantly different with respect to competitive conditions, particularly when one considers that electronic communications companies do not differentiate in price between these areas in retail and similarly, these areas are not exceptional with respect to service offer or quality of connections to any significant degree, as will be explained later.

650. As has previously been stated, investments have been made in fibre-optic local loops at many locations in the country with state aid and/or municipalities. The PTA has examined monthly prices for fibre-optic local loops in countryside networks. In this work, the PTA examined public tariffs of municipalities or operators and also sent out queries. Replies were not received from all such parties, but in the following table 6.4 one can see the local loop price in the municipalities where the PTA received information, as it was at the beginning of March 2021, and the PTA assumes that this information gives a good reflection of the situation with respect to countryside networks as a whole¹¹⁷, as the PTA has not received any complaints about high prices from them.

¹¹⁷ The prices gathered from municipality websites are subject to reservation on their being correctly updated.

Table 6.4 Local loop prices on local networks

Name of operator	Location	Price incl. VAT
Austurljós	Fljótsháð - Egilsstaðir	3,490 ISK
Ásaljós	Ásahreppur	3,000 ISK
Bláskógaljós	Bláskógabyggð	3,000 ISK
Dalaveitur	Dalabyggð	3,075 ISK
Eyja- og Miklaholtshreppur	Eyja- og Miklaholtshreppur	3,472 ISK
Fjarðabyggð	Fjarðabyggð	2,852 ISK
Fjarðskiptafélag Reykhólahrepps	Reykhólahreppur	3,596 ISK
Fjarðskiptafélag SG	Skeiða- og Gnúpverjahreppur	3,100 ISK
Flóaljós	Flóahreppur	3,000 ISK
Gagnaveita Hornafjarðar	Sveitarfélagið Hornafjörður	3,100 ISK
HEF veitur	Fljótsháð - dreifbýli	3,400 ISK
Helgafellssveit	Helgafellssveit	3,190 ISK
Hitaveita Drangsness	Kaldrananeshreppur	3,300 ISK
Hrafnshóll	Skaftárhreppur	2,852 ISK
Hrunaljós	Hrunamannahreppur	3,162 ISK
Húanet	Húnavatnshreppur	3,224 ISK
Hvalfjarðarsveit	Hvalfjarðarsveit	2,945 ISK
Leiðarljós	Kjósarhreppur	3,000 ISK
Líf í Mýrdal	Mýrdalshreppur	2,915 ISK
Ljósfesti	Borgarbyggð - Bæjarsveit	3,100 ISK
Ljósleiðari Borgarbyggðar	Borgarbyggð - Dreifbýli	3,090 ISK
Ljós punktur ehf.	Skorradalshreppur	1,364 ISK
Rangárljós	Rangárfing ytra	3,000 ISK
Skaftárljós	Skaftárhreppur	3,472 ISK
Average		3,071 ISK
Median		3,095 ISK
Highest price		3,596 ISK
Lowest price		1,364 ISK

651. These are prices that are either collected directly from consumers including VAT, or by electronic communications companies in wholesale. Then there are very few municipalities that do not collect any local loop lease charge, neither from electronic communications companies nor from consumers¹¹⁸. Examples of such municipalities are Tjörneshreppur in Northeast Iceland, Fljótsháð in East Iceland and Strandabyggð in the West Fjords and the local network in Skaftárhreppur owned by Digraklettur ehf. which are small local networks with only several tens of connections each, and that are of little importance in the larger context of this analysis.

652. As can be seen in the table, the average price is ISK 3,071/month including VAT or ISK 2,476/month ex VAT. These are P2P local loops, where, according to the Mila tariff, the

¹¹⁸ The electronic communications companies that operate the networks however collect local loop lease from the consumers.

monthly price for the company's fibre-optic local loops is ISK 2,480 ex VAT in the countryside after the increase in the Mila tariff on 1 September 2020.

653. Some of the countryside networks that have been funded by the state and/or municipality are now owned by Mila or in long-term lease to that company. The networks of Skútustaðahreppur and of Vopnafjarðarhreppur are now owned by Tengir. The Tengir local loop lease price is ISK 3,350/month including VAT (ISK 2,702 ex VAT) after the increase to Tengir tariff on 1 January 2021. GR does not offer local loop lease on the relevant market, but the GR local loop price can nevertheless influence Mila pricing for local loops. GR collects ISK 3,445/month including VAT (ISK 2,778 ex VAT) after the increase to the GR tariff on 1 January 2021. For some considerable time, GR collected the access charge directly from consumers and in addition to the access charge, GR collects a monthly charge from electronic communications companies for the bitstream service used through the local loop.

654. Orkufjarskipti also offers local loops in the areas where the company has deployed fibre-optic for its own use (monthly price ISK 3,472, including VAT, ISK 2,800 ex VAT) and the company Snerpa has deployed fibre-optic in part of its operational territory (monthly price ISK 3,580 including VAT, ISK 2,887 ex VAT) and in cooperation with municipalities in the West Fjords.

655. As stated here above, the monthly price for Mila fibre-optic local loops is somewhat lower than the monthly price of Tengir, Snerpa and Orkufjarskipti (9- 16%). It is also similar to the average price on local countryside networks as shown in the table here above. Snerpa fibre-optic local loops are only used for its own bitstream service up to this point in time, so there are no external sales with that company. In reality one can say that same applies to almost all Mila fibre-optic local loops, i.e., that only a very small number of Mila local loops are provided without Mila GPON bitstream service. This means that the combined Mila monthly charge for fibre-optic local loops and GPON service (A1) means more to Mila than pricing of a separate local loop as the former is the service that is in most instances delivered to external parties. As previously stated, GR is not offering local loop access without bitstream service.

656. The Mila local loop price for fibre-optic local loops in the Capital City Area and in Akureyri was ISK 1,417 and October 2013, ISK 1,750 in January 2016 and ISK 1,970 in July 2017, and remained unchanged until the company increase the price on 1 September 2020 to ISK 2,120, and Mila has announced that this increase will be implemented on 1 May 2020 and said that it had been postponed because of COVID-19. With the last increase, the price increased by 7.6% in that area, and from ISK 2,300 to ISK 2,480 in the countryside, which is about 7.9%. Since 2016, there have been several increases in the local loop price of Tengir and GR. The PTA considers that Mila pricing and that of other electronic communications infrastructure companies that offer local loop lease over fibre-optic are comparable, as there is very little difference in price.

657. One must take into account that Mila PON local loops are generally not sold without bitstream, but the product is rather in the vast majority of cases provided with bitstream, often on Access Option 1 (A1). According to information from Mila, dated 11 December 2020, there were only [...] Mila fibre-optic connections sold without bitstream which represents [...]% of Mila leased local loops, on the basis of the number of local loops leased by the company at the end of June 2020. It is for this reason in the opinion of the PTA, more reasonable to take into account the development of prices of fibre-optic local loops with bitstream (often on A1), and this is the product that customers most often use, as the proportion of P2P local loops of the total Mila local loops is very small, about [...]% at the end of June 2020. As previously stated,

access to the local loop without bitstream is realistic in the case of P2P fibre-optic local loops, but not in instances of PON fibre-optic local loops. In the table here below one can see dates for changes to local loop prices (ex VAT) where A1 bitstream is included:

Table 6.5 Price development of fibre-optic local loops

Monthly price of Mila's fibre local loops delivered at Access Option 1 (A1)			
Date/Increase of	Greater Reykjavík area and Akureyri	Rural Area	Building Price Index
1 August 2013 - A1	3,105 ISK	3,105 ISK	118.7
1 October 2013 - Local Loop	3,217 ISK	3,217 ISK	118.7
1 January 2016 - Local Loop	3,550 ISK	4,100 ISK	128.2
1 February 2016 - A1	2,950 ISK	3,900 ISK	127.9
1 September 2016 - A1	2,640 ISK	3,900 ISK	131.6
1 June 2017 - Local Loop	2,860 ISK	3,900 ISK	131.6
1 September 2020 - Local Loop and A1	3,080 ISK	4,080 ISK	148.0
Relative increase 1 September 2020			
from 1 August 2013	-0.8%	31.4%	24.7%
from 1 October 2013	-4.3%	26.8%	24.7%
from 1 January 2016	-13.2%	-0.5%	15.4%
from 1 February 2016	-4.2%	-4.4%	15.7%
from 1 September 2016	16.7%	4.6%	12.5%
from 1 June 2017	7.7%	4.6%	12.5%

658. As seen in the table, there were many changes to these prices from 1 January 2016 and up to mid-2017, but the prices remain unchanged from June 2017 until September 2020. In the table, these changes are compared with an increase in the building price index¹¹⁹. Then one must bear in mind in this connection that at the end of 2013 leased fibre-optic local loops owned by Mila were only [...], and it was not before the first half of 2017 that Mila leased local loops exceeded [...]. At the end of 2020, Mila leased local loops numbered [...]. In order to examine the development of price with Mila, the PTA considers it appropriate to consider the date where the Mila tariff policy was published at the beginning of 2016, as at that time there were significant changes made to the tariff for, even more so, on 1 July 2017 when changes/adaptation between local loop price and the price for Access Options 1 and 3 took place. If one examines development of the access price from Mila from 1 June 2017 until 1 September 2020, the increases below the index increase, i.e., the price for local loop in Access Option 1, did not increase at all in over three years and the increase then was 7.7%, while the building price index increased by 12.5%. Prior to that, i.e., in February and September 2016 reductions were made in the tariff, and as stated previously, Mila was commencing its fibre-optic rollout in 2016 and leased local loops were not many initially.

659. The price of Mila copper local loops increased by 11% from 1 July 2017 until 1 June 2019, while the building price index was 11% for the same period. The price for copper local loops in Access Option 1 is now ISK 2,283 per month ex VAT and there is thus a considerable

¹¹⁹ The building price index is used when considering costs for distribution of fibre-optic, as the largest cost is civil works.

difference in price between the company's copper and fibre-optic local loops. The last cost analysis of Mila copper local loops ended with the PTA Decision no. 8/2019 and was based on information on operational costs for 2017, while investments were indexed to average price level price in 2017, and investment plans for the years 2018 and 2019 were included in the equation. In June 2021, Mila submitted to the PTA an updated cost analysis, which is based on figures from 2020. It is very likely that the conclusion of that analysis will lead to increases in the Mila copper local loop prices and that in the future, the difference will significantly shrink between the prices of the above specified technical solutions, among other things because of significantly diminishing usage in the copper network. By the nature of things, increases appear later when a company is subject to obligations for a cost-oriented tariff than when pricing is free. What matters most in the opinion of the PTA is that with larger electronic communications companies, there is little difference in retail in prices to consumers, on the basis of whether the connection is over a copper or fibre-optic network. This fact strongly indicates that there is still substitutability between connections over copper and fibre-optic networks.

660. Mila also mentions that the company had only deployed a limited number of fibre-optic local loops outside the Southwest corner of the country and that there had not been a comprehensive fibre-optic rollout but rather a case of investments being made in areas where this was most economic. There was furthermore a significant cost difference in fibre-optic rollout by area and by the number of dwellings at each address. It is stated there by Mila, that there is a cost difference by area, but as has been stated here above, the PTA considers that this is first and foremost, the reason for varying pricing by Mila between area, along with economy of scale and less population density, rather than strong competition on the relevant wholesale market and related retail market.

661. In the preliminary analysis, the PTA raises the question of whether the Mila pricing policy in question could constitute predatory pricing by the company, but the PTA made no assertion on this nor conducted a detailed analysis on this matter. The Mila price increase in 2020, subsequent to the preliminary analysis having been submitted for consultation, in all likelihood lessens this possibility. There will be further discussion on this matter in Sections 10.2 and 11.2, where there is discussion on possible and real competition problems on the relevant markets. One can furthermore refer to Appendix C in this connection.

662. Taking all of the above into account, the PTA considers that pricing by Mila and competitors of the company on the relevant market and on the related bitstream market (Market 3b) do not give reason to geographically segment the market in this country. Though there is some difference in Mila wholesale prices by geographic area, consumers do not perceive such a difference at retail level, regardless of the service provider they use.

6.6.6 Other aspects, including marketing policy, marketing behaviour, the service offer, quality of connections and nature of demand by area

663. Other criteria that NRAs can take into account for the purpose of revealing a possible difference in conditions between areas are for example:

- Possible difference by area in marketing and sales policy.
- Possible difference by area in characteristics and attributes of service, e.g., quality, supply and functionality or usability.

- Nature of demand, which can be local, i.e., bound to one area or a number of areas without covering the whole country.

664. With respect to the relationship between the above specified criteria, one may assume that the greater the variation in competitive conditions between areas, the greater the correlation should be between areas where each criterion is fulfilled. In other words, one could say that where there is a large difference in competitive conditions between areas, then this can be explained by:

- Many market players that have or could possibly enter the market in the area or areas in question.
- A lower market share of the SMP operator in the area or areas in question.
- Lower prices of the SMP operator and/or of his competitors in the area or areas in question.

665. Marketing policy for retail Internet service must be considered to be homogeneous for the whole country. When the marketing mix elements are examined, and they are product, price, promotion and distribution, this is clearly shown.

- The product is the same across the country, Internet service retailers do not have varying components included in the product depending on where it is sold. Technical quality attributes are also the same or so similar across the country that the general consumer perceives no difference. On fibre-optic local loops the connection is either full quality or no connection. On copper local loops, there can be a difference in quality and the connection depending on the carrying capacity of the copper line in question. But such instances depend on individual copper lines and their length and are not systematically different from one area of the country to another. ADSL connections are now less than 10% of the number of copper connections in use and less than 3% if one considers connections both over the copper network and the fibre-optic network.
- The price of Internet service in retail is the same, wherever the purchaser lives in the country. No retailer in this country offers differing prices for his service on the basis of some kind of geographic division of the country.
- Advertisements and marketing operations also cover the whole country. There is no evidence of any retailers conducting varying or separate marketing operations in particular areas of the country, such that they are different from those in other areas.
- Distribution of the product depends on where and how the product is sold. Electronic services are delivered through electronic communications connections, regardless of where they are located in the country. There can be a difference in how consumers commence the business relationship and receive installation of the necessary connections and delivery of equipment at their home, depending on where the consumer lives. But such a difference is rather about whether residence is in an urban area or rural and there is nothing that indicates a systematic difference in areas in the country such that one differentiates from the rest.

666. When one considers consumer demand, there is nothing to indicate that it in any differs by geographic area. Internet services are used to fulfil the same or similar needs and do not

depend on where in the country the consumer or company is located. The same can be said about other service provided through broadband connections such as IPTV and VoIP.

667. Mila states that there is a difference in service offered by area, as Mila offers 1 Gb/s speed in the competitive areas, but only 500 Mb/s outside them. This is not an entirely true assertion from Mila that the company only offers 1 Gb/s speed in the areas that Mila defines as competitive areas. Mila offers 1 Gb/s speed more widely, e.g., at Snæfellsnes and Skagafjörður. The fact that Mila rather offers 500 Mb/s in the countryside, where the company offers fibre-optic, and not 1Gb/s as in the Capital City Area, does not indicate in the opinion of the PTA that competitive conditions are significantly different between these areas, such that there is reason to segment geographic markets. One cannot see that this difference manifests itself in marketing by the Siminn Group, nor as is the case with other service providers that have access to the Mila fibre-optic network, neither for service over fibre-optic, nor for VDSL on a copper network where 50 Mb/s are generally on offer and widely 100 Mb/s where vectoring is applied.

668. The PTA considers that according to the PTA consumer survey, where most of those who had access to VDSL considered their connection adequate for the needs of the household, that this then applies even more to 500 Mb/s fibre-optic connections. The PTA believes that the general user does not make any significant distinction between 500 Mb/s and 1 Gb/s connections today and that the same will apply during the lifetime of this analysis, regardless of what may come to pass in the future. In this connection, one can mention that many other factors have an impact on consumer experience with respect to performance of network connections, not least capacity of wireless network connections within homes, which is dependent on very many variables, such as other wireless networks in the vicinity and the nature and thickness of partition walls in the premises. It should not be difficult for Mila, and not so costly, to upgrade these connections to 1 Gb/s if and when there is general demand for this.

669. With the above in mind, the PTA does not consider that factors such as marketing policy or marketing behaviour of electronic communications companies, service offer, quality, functionality or usability of connections or the nature of demand are so different between areas in this country that it gives reason to segment the relevant geographic market here. In the section here above, it was described such that consumers perceived no price difference by area for broadband service, though the setup charge could vary somewhat, but that is a charge that Mila takes and not the service providers, which include Siminn.

6.7 Conclusion with respect to geographic definition of the wholesale market for local access with fixed connection (Market 3a)

670. As has been stated here above a geographic market covers a geographic area where stakeholder undertakings participate in supply and/or demand of the relevant goods or services where conditions for competition are the same or sufficiently homogeneous and where it is possible to differentiate the geographic area from neighbouring areas where conditions for competition are significantly different. It is therefore not necessary that competitive conditions are precisely the same in the various areas. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are really “different” that cannot be considered to jointly constitute the same geographic market.

671. *Real* competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications companies, for example in their pricing and service offer, and the impact of this behaviour on the structure of the market, for example market share and network deployment. The task is therefore to find out whether, within a specific country, there is adequate homogeneity between areas such that the country should be considered to be a single market or whether competitive conditions vary significantly between areas such that separate geographic markets should be defined or varying obligations imposed by area.

672. According to the ESA Guidelines on market analysis from 2004, which are now showing their age, the process for geographic definition of markets shall be analogous to the process that applies to definition of product and service markets, among other things regarding assessment of demand- and supply-substitutability. Instead of assessing substitutability between product or service categories, the task is to assess substitutability between areas. Homogeneity of competitive conditions between areas is therefore examined, among other things with regards to deployment of new electronic communications networks, market share, pricing, service quality, service offer, market behaviour, service characteristics and the nature of demand. In the BEREC Common Position on geographic analysis from 2014, one can find more detailed guidelines for the geographic analysis. In a new document from BEREC from 2018 it was then confirmed that guidelines in the above specified BEREC document from 2014 were fully in force.

673. With respect to assessment of substitutability, the PTA comes to the same conclusion as in its last decision on the market in question, see PTA Decision no. 21/2014. Among other things, there was discussion there about assessment of substitutability on the basis of an SSNIP test. It was stated that it would be fair to say that it was very unlikely that a sufficient number of consumers would decide to move to a new house to another market area because of a 5-10% price increase, on its own. It was also unlikely that other network operators would embark on establishing their own network subsequent to such a price rise, on its own. The SSNIP test could thus lead to many and small markets and would thus neither be realistic nor useful in the circumstances that pertained on the relevant market in this country. Strictly speaking, deployment of new electronic communications networks could mean that assessment of substitutability indicated that there were many geographic markets. On the other hand, the fact that the Mila network (copper and fibre-optic) almost covers the whole country, contradicted such a conclusion. It was therefore necessary to emphasise competitive conditions and to investigate whether they were sufficiently homogeneous over the whole country.

674. In the above PTA Decision no. 21/2014, the Administration came to the conclusion that there were no arguments for applying geographic measures on the market in question, as competitive conditions were not sufficiently heterogeneous between areas, and in addition to this, the boundaries between deployment of fixed line access networks were unclear. This meant that clear and stable boundaries between the geographic areas in question could not be found. The distribution of new access networks was unpredictable and random in some instances. The Mila copper local loop network covers the whole country while other access networks were local and much smaller than the Mila network. Wholesale of the Mila copper local loop network was on offer across the whole country at the same price, subject to a prior obligation on Mila to this effect. Pricing on the market strongly indicated that this was one geographic market, and in addition to this there was no difference in quality of connections by area. The jurisdiction of the Electronic Communications Act was the whole country and authorisation for companies to operate networks provided at a fixed location covered the whole country and was based in all instances on the same laws and regulations. In addition to having

a dominant position in those areas where there was little or no competition, Mila, in the opinion of the PTA, still had a very strong position in those areas where another network was also on offer. The conclusion was in accordance with practice in Europe where only the United Kingdom, Hungary and Finland had segmented the market in question geographically.

675. In the above specified ESA guidelines and those of BEREC, it is stated that in order to avoid a huge number of small markets, it could be useful to group in separate units, those areas where comparable competitive conditions pertained, often such that one area comprised areas with more competition and the other comprised areas where there was little or no competition. Competitive conditions between the areas in question were then further analysed with regards to whether it was justifiable to apply geographic measures, i.e., whether to segment geographic market, or to apply varying obligations by area.

676. It is clear that a substantial deployment of fibre-optic networks to households and companies has taken place in this country since the last analysis. GR and Tengir have continued their deployment in their own operational territories and in addition to this, Mila commenced vigorous deployment of this nature a few years ago. A large number of fibre-optic networks have been deployed in the countryside by various municipalities, often with state aid. The situation now is that about 83% of the population had the option of such connections at the end of 2020 apart from the Mila copper network which covers almost the whole country and reaches 86% of the country's homes and companies. It is likely that this development will continue during the lifetime of this analysis. Mila fibre-optic local loops reached at least 47% of households and companies at end of year 2020. The company plans for continued vigorous fibre-optic rollout in the coming years. At the end of 2020, GR fibre-optic local loops reached 67% of homes and companies and the company projects continuing development in its operational territory in the coming years, despite this being less rapid than in recent years. The company expects that company's fibre-optic local loops will be [...] at the end of 2023. The Tengir network reached 6% of households and companies at the end of 2020 and the company projects that they will be just under [...] at the end of 2023. At the end of 2020, Snerpa had deployed fibre-optic to just under 1,200 spaces in the West Fjords, and the company expects them to have become [...] at the end of 2023. At the end of 2020, Austurljós had deployed 200-300 fibre-optic local loops at Egilsstaðir and the company projects modest expansion of the system in the coming years.

677. In addition to this, municipalities have deployed some thousands of fibre-optic local loops to the more sparsely populated communities in recent years, often with staid aid from government through the Telecommunications Fund project, Iceland Optical Connected, and it is expected that this development will continue until the end of 2022, and even into 2023, and that more than 6,000 fibre-optic local loops will have been deployed in connection with that project. On the other hand, Mila has been deploying such networks with the help of state aid, purchasing such networks or leasing long-term to a significant degree, and it is predicted that this development will continue throughout the lifetime of this analysis. The possibility that competition problems could result from such networks is less likely, as they are subject to obligations for among other things, open access, in accordance with the rules on state aid, but Mila control of many such networks is conducive to increasing the company's market strength at a national level. According to the above, one may assume that more than 90% of households and companies in the country will have the option of a fibre-optic connection towards the end of the lifetime of this market analysis. Fibre-optic of parties other than Mila reached about 74% of the country's homes and companies at the end of 2020 and the PTA expects that this proportion will have reached [...] % at the end of 2023, if one allows for an increase in spaces

of about 3,000 per annum and they will then be 172,000, whereas today they are just over 163,000.

678. In the above specified BEREC Common Position from 2014, it is stated that when selecting areas for analysis, the selected areas need to fulfil specific criteria, among other things to be smaller than the country as a whole and that they are mutually exclusive with regards to competitive conditions, that the boundaries are clear and stable and that they are sufficiently small for it to be unlikely that competitive conditions will significantly change within them, but sufficiently large to prevent an excessive burden on market players and NRAs. The advantages and disadvantages of the applicable methodologies should be analysed when segmenting into areas. The methodology should be chosen as the best fit with the above specified conditions.

679. Historically, geographic markets have in almost all cases been according to the distribution of the electronic communications network of the former monopolist incumbents in Europe. For a long time, the main principle was that there was only one such party who controlled a nationwide fixed line network in each state. For this reason, it had been the conclusion of the vast majority of market analyses of NRAs in the EEA that the whole country was considered to be one geographic market. This has however changed in recent months and years in quite a number of European states, though rather on Market 3b than on Market 3a. In later years, geographic analysis of markets has become more important and at the same time more complex than before, among other things where new network operators have entered the market in competition with the former incumbent monopolist.

680. In the above specified BEREC report from December 2014 there are among other things, explanations of the criteria that NRAs have used when geographic analyses are conducted, and areas selected. It was stated that there was normally a large number of areas identified on the basis of specific conditions which were then categorised into two or more units where competitive conditions were largely comparable within each unit. These criteria in the initial stages of geographic analysis had first and foremost been based on indications on market structure, e.g., deployment of competitors' networks and market share at retail level. More emphasis was placed on behaviour of market players, e.g., pricing, later in the process when an assessment is made of whether competitive conditions are sufficiently heterogeneous between the selected areas to justify geographic measures.

681. In the report it is also stated, in discussion on selection of appropriate areas that a large majority of NRAs had used administrative units, e.g., municipalities or postcodes, rather than the network topology of the former incumbent monopolist and as appropriate of their competitors as well. The reason why administrative units were chosen was among other things, that they were considered to be clearly delineated and stable and that such units were generally small enough to ensure homogeneity and were sufficiently large for it to be able to analyse competitive conditions in an effective manner without imposing an excessive workload on parties to the market, or on the relevant NRA. Excessive analysis could be extremely time-consuming and not justifiable unless there was major uncertainty about the result.

682. It was also stated that after having analysed the geographic areas, the next step was normally to group those areas with similar competitive conditions. The areas were generally grouped into areas where on the one hand there was significant or some competition and on the other hand, areas where there was less or even no competition. Varying criteria could be used for such grouping. On Market 3a the most common criteria used were on the one hand that a specific number of competitors of the dominant operator had begun to deploy their own

infrastructure above a specific level (generally 50-75% deployment by more than one competitor) and on the other hand that the market share of the dominant operator had fallen below a specific level at retail level (generally 40% or 50%).

683. Finally, it was stated in the BEREC document in question that most NRAs had taken account of expected future developments in deployment and market share.

684. Taking the above into account, one must therefore find sensible and usable criteria for the selection of geographic areas that will be examined, before it becomes possible to assess whether the areas are segmentable with respect to potentially significant variations in competitive conditions between them. There are however examples in Europe where the fact that areas had been segmented into more than one group for analysis had not changed anything with respect to designation of a party with SMP, (in a case of geographic segmentation) nor led to imposition of varying obligations on completion of detailed geographic analysis.

685. Instead of embarking on a detailed and time-consuming assessment of competitive conditions in each municipality in the country, and they are 69, the PTA considers it to be a more useful and appropriate method to define clear criteria on how to group the areas, i.e., on the one hand into areas with little or no competition and on the other hand into areas with more competition. Given the situation in this country, the PTA considers it important to base such grouping on more than one criterion. In accordance with the above specified BEREC document, the PTA considers that it should not matter whether the area in question is operational territory of GR or of Tengir for it to be possible to group them together, if competitive conditions are homogeneous between the municipalities in question.

686. In the opinion of the PTA, municipalities are the most appropriate units to use in geographic analysis, given the structure of the market in question here in this country and other competitive conditions on it. It is clear that fibre-optic development within many municipalities is considerably more than was the case in the last analysis of the relevant market and municipality boundaries are thus now much clearer and more stable with regards to geographic analysis and therefore usable for selection of areas for geographic analysis. In the opinion of the PTA, they are also suitably large for it to be likely that the situation within them will not fundamentally change in the lifetime of the analysis and not so small that they impose an excessive burden on market players, or on the PTA, during market analysis.

687. Discernible boundaries based on deployment and topology of the network of the potential SMP operator, having taken appropriate account of the deployment of networks of competitors of such a party, seem to be in rapid decline in this country and in Europe. The deployment of fibre-optic networks of Mila's competitors does not depend on Mila network topology. For some considerable time, the GR distribution area was in step with the OR distribution area but in recent times it has extended to a number of locations in Southwest Iceland. The Tengir operational territory was for a long time, Akureyri and Eyjafjörður but has moved to more areas in Northeast Iceland and West to Húnavatnssýslur. The GR and Tengir networks therefore now reach quite a number of municipalities. For this reason, the PTA does not think it is right to use the network topology of Mila or its competitors in this country as a boundary, though the municipalities certainly reflect development of Mila competitors' electronic communications networks, though the situation in this respect may vary within them.

688. The PTA also examined whether postcodes could also be suitable for geographic analysis. That examination revealed that some postcodes cover a very wide area while other postcodes are very small. There is also the fact that some postcodes in the countryside cover

more than one municipality while in other municipalities there are many postcodes. The PTA explained more drawbacks to postcodes in Section 6.4 here above and reference is made to that.

689. As mentioned above, it is stated in BEREC reports that generally there needs to be more than one network competitor of the SMP operator for it to be possible to consider that effective competition, or at least significant competition, can exist on the relevant market. In Iceland it is generally the case that there is only one network competing with Mila in each area and it is assumed that this situation will not change during the lifetime of this analysis. Large and rather sparsely populated areas enjoy however, no such competition. To divide the areas into units with little or no competition on the one hand and units with more competition on the other hand and it is therefore normal in the opinion of the PTA, in the light of conditions in this country today, to base such differentiation on rather strict criteria, among other things to allow for significant deployment of networks of Mila's competitors, as there is generally only one such network where they operate.

690. Having taken the above into account, the PTA plans to define areas as having more competition where the following two conditions are fulfilled in the municipality in question.

- That there is a fibre-optic network that competes with Mila in the relevant area, which has distribution to at least 75% of households and companies.
- That the Siminn market share on the retail market for broadband service is under 50%.

691. The PTA has analysed distribution of networks by municipality and retail share of service providers as has been stated here above.

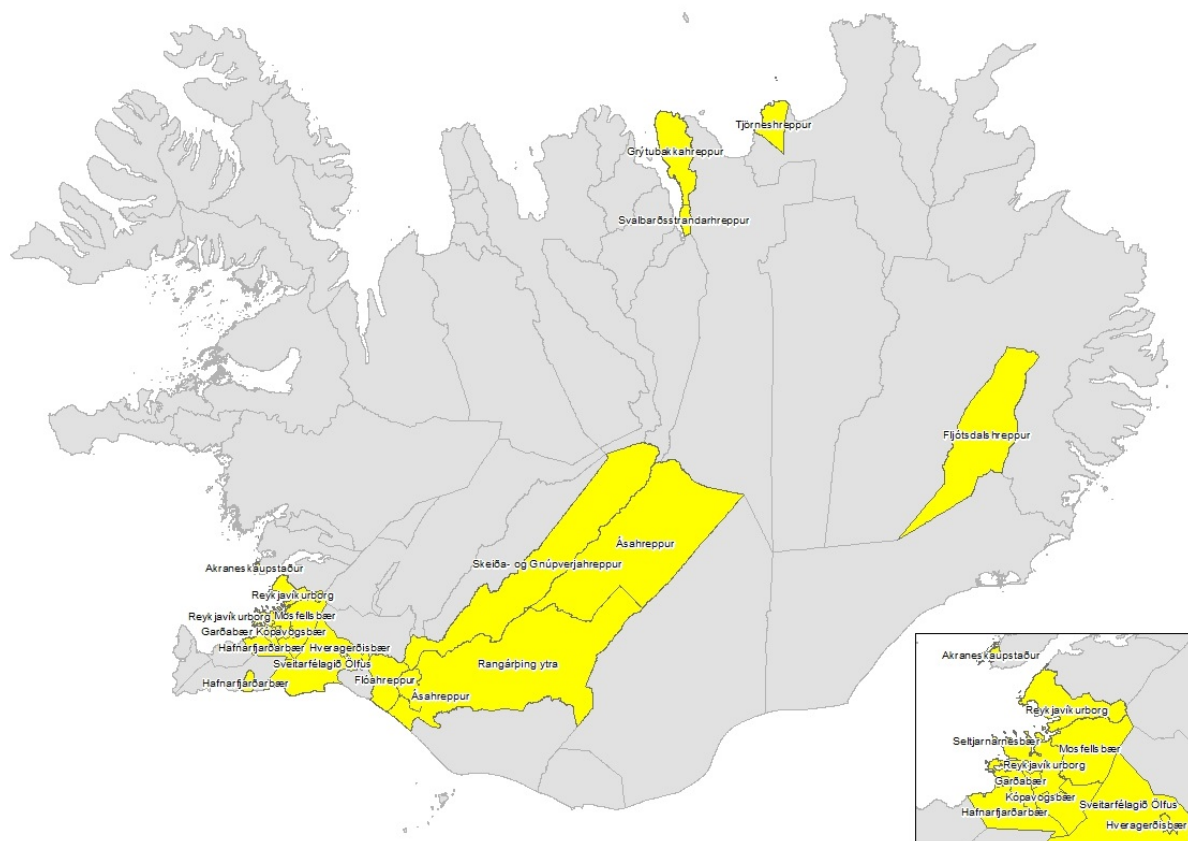
692. When these two factors are taken jointly, the following 17 municipalities are seen to fulfil both criteria:

- The City of Reykjavík
- Kópavogsbær
- Seltjarnarnesbær
- Garðabær
- Hafnarfjarðarkaupstaður
- Mosfellsbær
- Akraneskaupstaður
- Svalbarðsstrandarhreppur
- Grýtubakkahreppur
- Tjörneshreppur
- Hveragerðisbær

- Sveitarfélagið Ölfus
- Flóahreppur
- Ásahreppur
- Fljótsdalshreppur
- Rangárþing Ytra
- Skeiða- og Gnúpverjahreppur

693. This means that 25% of the country's municipalities belong to the area where more competition pertains and thus where lighter obligations will apply, and about 70% of the country's population lives in these municipalities. The PTA will then annually update the list accompanying the decision, in the first instance early in 2022 with the status as of end of year 2021.

Figure 6.14 Municipalities where competitive conditions are deemed to differ on Market 3a



Source: Post and Telecom Administration.

694. The Mila position is very strong in areas outside these 17 municipalities, i.e., generally from over 50% up to 100% market share. The Mila position is furthermore generally quite strong within these 17 municipalities. It is also worthy of note that Mila market share is

approximately [...] % in the whole of GR operational territory and [...] % in Tengir operational territory. Over the whole country, the Mila market share is 57% on the market in question.

695. As has been stated here above in Section 6.5, geographic analysis shall contain a review of competitive conditions on the related retail market with regards to geographic aspects. It is also necessary to keep in mind how competitive conditions would be on the relevant retail market if there were no wholesale obligations (modified greenfield approach).

696. In that discussion it was stated among other things that the NRAs in Europe had generally defined markets Market 3a and Market 3b (particularly Market 3a) as the country as a whole, despite having identified some difference in competitive conditions on related retail markets.

697. There it was also stated that the retail market in question comprised only copper-, cable- and fibre-optic connections which gave service providers the option of providing consumers with Internet and other related services, which were delivered over bitstream, that is to say IPTV and VoIP.

698. Furthermore, it was the PTA conclusion that it was perfectly clear that effective competition did not exist on the retail market in question, despite the obligations resting on Mila, pursuant to the PTA Decision no. 21/2014 on wholesale markets for local loops and bitstream access and that the situation on the retail markets in question would doubtless be worse were it not for the wholesale obligations in question. Reference was then made to the fact that market analyses in the EEA had generally shown that on retail markets for standard broadband connections there would be a lack of competition if obligations on the underlying wholesale markets (one or both), particularly in states where there is only one network with national coverage, were not in place.

699. Reference was made to the strong position of Siminn on the retail market in question, where the company share had remained reasonably stable since the last analysis. It was 46% at end of year 2020. The PTA considers among other things that the Siminn broadcasting rights for English football for the years 2019-2025 had strengthened the Siminn position. The success of Heimilispakkinn, which was launched in October 2015, and which includes among other things the Sjóðvarp Símans Premium content provider, is also doubtless one of the reasons. Siminn share in bundles (Heimilispakkinn) was also dominant.

700. It was furthermore stated that Siminn provided retail service across the whole country as the former monopolist incumbent in electronic communications and enjoyed ubiquity. The number of competitors to the company varied somewhat by geographic area but significant competitors such as Vodafone, Nova and Hringdu provided retail service in all the most populated areas, and this was possible in the countryside among other things through access to Mila's Access Option 3.

701. The Siminn market share in Internet retail was about 46% at a national level but it differed somewhat by area, i.e. from [...] % in Fljótsdalshreppur and up to complete dominance in various areas in the countryside. In the Capital City Area it was approximately [...] %, about [...] % in the whole of GR operational territory and about [...] % in Tengir operational territory.

702. It was also stated in the above referenced Section 6.5 that it was not possible to discern any difference by geographic area between the Siminn pricing policy and those of its competitors at retail level. This was also the case with respect to quality of connections, service offer, marketing policy and the nature of demand. It was therefore the conclusion of the PTA

that there was no significant difference in competitive conditions on the retail market for broadband service in this country by geographic area and that the geographic market is therefore the whole country.

703. After having discussed geographic analysis in general, having examined the PTA Decision no. 21/2014, having described the situation at retail level, network distribution and deployment plans and selected areas for more detailed geographic analysis, the Administration had in Section 6.6 conducted a detailed assessment of homogeneity in competitive conditions in selected areas.

704. The first aspect examined by the PTA was whether there was a possible variation in entry barriers between areas. It was stated in Section 6.6.2 that one could assume that in this country, entry barriers were greater in sparsely populated areas with small populations than in the more densely populated areas, as became the reality with the deployment of the GR fibre-optic network in Southwest Iceland and that of Tengir in Northeast Iceland. One could therefore conclude that access barriers for new entries to the market in question were significantly greater in rural areas than urban, both with regards to fewer possibilities to leverage economy of scope in developing networks and also with regards to costs for trunk line connections to provide service across the area. It was however necessary to note that fibre-optic had been rolled out in the least populated areas by many municipalities, often with state aid. Mila had however been purchasing and leasing a large number of such local networks in recent times and one could expect this development to continue. Mila and GR on the one hand and Mila and Tengir on the other had also however embarked recently on joint deployment of fibre-optic networks in a number of municipalities and expect that such cooperation could continue and thus lower investment costs, which in turn would lower entry barriers. In addition to this, one could mention that a stricter and more transparent obligation on access to the company's existing ducts and conduits could reduce investment costs for competitors, thus lessening entry barriers.

705. The next aspect examined by the PTA was the number of significant competitors to Mila by geographic area, in Section 6.6.3. There it was stated that a simpler and often more effective method, which can also reflect entry barriers by area, was to examine the number of competitors of the SMP operator that provide or can provide service in the relevant area or areas. It was easier to demonstrate this than to conduct the assessment of entry barriers by area, and this method furthermore shows how entry barriers really work in practice. On Market 3a, this was those players that operated their own electronic communications network, i.e., copper and/or fibre-optic networks in the various areas in this country. Competitive conditions could also vary by area as a result of the size of such competitors, no less than as a result of their number.

706. Then it was also stated that it would be unlikely that consumers and companies in this country would have the choice of more than two options for access networks at a fixed location and one could assume that in many sparsely populated and wide-reaching areas in the countryside it was not unlikely that there would only be one option. The PTA conclusion was that it was mainly GR in Southwest Iceland and Tengir in Northeast Iceland that could be considered significant competitors to Mila on the market in question. As previously stated, it is however likely that the GR and Tengir fibre-optic networks will reach about [...] % of the country's households and companies during the lifetime of this analysis, and therefore it is clear that a large majority of citizens and companies will enjoy options in this regard. These networks reached about 74% of the population at the end of 2020.

707. The third aspect examined by the PTA was market share in wholesale and retail by geographic area, in Section 6.6.4. There it was stated among other things, that one method to take into account size and strength of competitors of the Siminn Group in geographic analysis was to examine market share of the players in the geographic areas in question, both at wholesale and retail level. It would be ideal if not only market share at a given point of time was shown, but also its development over time in order to make it possible to identify certain trends in this connection. Should indications emerge of significant changes in market share through points in time, then this could be indicative of varying competitive conditions by area. It was furthermore important that NRAs endeavoured to assess potential future development of market shares during the lifetime of the analysis.

708. In the section in question, it was also stated that the PTA had collected information on retail and wholesale market shares and on deployment of networks by municipality as the situation was 30 June 2018, 31 December 2018, 30 June 2019, 31 December 2019 and 31 December 2020.

709. The conclusion in Section 6.6.4 was that there was some difference in Siminn retail market share by municipality. At the end of 2020, Siminn had over 46% market share a national level. At the same time this share ranged from [...] % to being very high. Siminn does not have less than 40% share in the countryside in any populous municipality, but only in municipalities with very few inhabitants that only have a number of tens of connections. In the Capital City Area the Siminn share was about [...] % while it was common that it stood at 60-70% in many places in the countryside. It is a similar story with the Mila market share, though the lower margins are generally higher than with Siminn in retail, with the exception of very small municipalities in the Tengir operating territory. The market share of Mila and GR were, for example, similar in the GR operational territory at this point in time where Mila has [...] % of the wholesale market for local loop lease against a [...] % share for GR. Siminn has more than 40% market share in 57 municipalities of 69 and over 50% in 48 municipalities.

710. Market shares have not changed significantly at the above specified points in time at retail or wholesale level. PTA does not expect significant changes to take place in this respect during the lifetime of the analysis. In July 2020, Siminn and GR agreed on Siminn's bitstream access to GR's fibre-optic network. On 25 August 2021, Siminn began to provide its services via the GR network. The agreement states that at least [...] % of Siminn's customers will be on GR's network within [...] years, i.e., [...] customers compared to Siminn's current customer group. Based on information obtained by the PTA, it is likely that Siminn's customers on GR's network will be around [...] by the end of 2022. It can be assumed that those customers will consist of both Siminn's customers who have been on the Mila network as well as from customers who have been on the GR network but have been customers of Siminn's competitors. The PTA expects that this proportion will be [...] until throughout 2021, but after that they will be [...] % from the first group and [...] % from the second group. It can therefore be expected that Siminn will significantly strengthen its position in GR's operating area throughout the lifetime of this analysis, especially in Seltjarnarnes and Reykjavík, where Siminn's market share was somewhat lower at the end of 2020 than elsewhere in the capital area or in the GR area as a whole. Siminn's market share was [...] % in Seltjarnarnes and [...] % in Reykjavík at that time, while it was [...] % elsewhere in the Capital City area and up to over [...] % in some places in the GR area. On average, Siminn's market share was around [...] % in the entire GR area. The PTA assumes that Siminn's market share will have reached about [...] % by the end of 2020 in the GR area, of which about [...] % in both Reykjavík and Seltjarnarnes, all other things being equal.

711. One can therefore expect the Mila market share to decline somewhat, but in the opinion of the PTA, it will in all likelihood still be well over 50% on the relevant market at the end of the lifetime of the analysis, probably something in the range of 50-52%. This takes among other things into account that a number of Siminn customers will move from the Mila systems to the GR system as a result of the above-specified agreement between GR and Siminn, though Siminn will without doubt also gain a significant number of customers of its competitors that are already on the GR system. The decommissioning of the PSTN voice telephony service and the first steps in the Mila 10-year plan for decommissioning the company's copper network could have a small impact during the lifetime of the analysis such that the Mila share would decline. Given the modest distribution plans of electronic communications infrastructure companies apart from Mila and Mila's ambitious distribution plans for the coming years, the PTA considers that the decline in Mila share on the relevant market will decelerate during the lifetime of the analysis when compared with the last 7 years, which was a period when GR among other things, conducted rapid fibre-optic development which now appears to be much less rapid and will probably be that way in the coming years. It could, however, significantly change the landscape of the relevant market, to Mila's advantage, if service providers such as Vodafone and Hringdu were to increasingly switch from the GR network to the Mila network.

712. The fourth aspect examined by the PTA was assessment of homogeneity of market conditions by area with respect to pricing and pricing policy of electronic communications companies in wholesale and retail by geographic area, see Section 6.6.5. It was, for example stated that an important criterion when identifying whether competitive conditions might be variable between areas is the possible price difference between them at retail and wholesale level. If pricing of the potential SMP operator and pricing of his competitors were the same or similar across the whole country, i.e., not significantly variable between areas within the companies in question, this could provide indications that competitive conditions were not sufficiently heterogeneous between areas to justify segmented geographic markets or varying obligations by area. It even further supported this position if pricing between the parties in question in the various areas were the same or comparable.

713. It was furthermore stated that it was important to examine pricing and possible price differences, both at wholesale and retail level. In the opinion of the PTA, pricing at retail level had no less weighting than pricing at wholesale level in this assessment, as it was that price that the consumers experienced and that travelled all the way up the value chain. If consumers could purchase relatively inexpensive service in areas with more competition, while prices were significantly higher in areas with less competition, this could indicate variations in competitive conditions between areas.

714. At retail level, it is not possible to identify any price difference by area with Siminn. The same can be said about competitors of the Siminn Group. Then there is no significant price difference between the Siminn Group and its competitors at national level nor in specific areas. This strongly indicates that in this country there is no significant variation in competitive pressure between areas that could be considered substantial or meaningful.

715. Mila has however pointed out that in the GR operational territory, the set-up of Mila household connections for fibre-optic local loops is without charge, but elsewhere it is at the expense of users. This appears to be the only price difference that consumers experience between areas. In the opinion of the PTA, it is not a tipping point with respect to whether the wholesale market in question should be defined geographically or not, that Mila on-site service is less expensive in the immediate environment of the company's operational sites, when the service market is the whole country. This is a one-off cost and a large part of increased cost in

the countryside is per diem and other additional costs for travelling in the countryside, where distances are important. There are therefore clearly cost considerations that apply in this instance.

716. In addition to this, the PTA considers that this one-off cost is not high in the light of the fact that the average lifetime of the contractual relationship is likely to be counted in years rather than months. PTA sister institutions have in some instances come to the conclusion that such average lifetime is 60 months. It could easily be longer than that when it relates to the underlying carrying layer, than when switching service provider on the same carrying layer. The consumer survey that the PTA commissioned in the autumn of 2020 also indicates that Siminn customers are less likely to switch service provider than customers of other service providers.

717. At wholesale level, it is not possible to detect significantly differing prices between Mila, GR and Tengir on the market in question. There is more variation, though not significant, in the prices of the small local players that have enjoyed state aid for their fibre-optic development. In the wider picture, those prices are of little importance, and in addition to this, Mila has been deploying such networks with state aid, purchasing many of them or leasing them long-term and it is expected that this development will continue during the lifetime of this analysis. According to the rules on state aid in electronic communications, those networks shall offer open access on the relevant market and base their prices on benchmarking. For this reason, the PTA considers that direct competition problems resulting from the presence of the networks in question do not exist or that they are at least minor.

718. Mila wholesale price on copper networks on the relevant market are uniform across the country, all subsequent to price control which was imposed with the PTA Decision no. 21/2014. On the other hand, the Mila wholesale prices for fibre-optic on the relevant market vary to a small degree between urban and rural areas, about 17% on Market 3a and 67% on Access Option 1 and 48% on Access Option 3 on Market 3b, but there is no obligation in force there on price control. It is likely that it would also be the conclusion with respect to copper with Mila if the above specified price control was not in place. One must take into account that Mila PON local loops are generally not sold without bitstream (GPON), but the product is rather in the vast majority of cases provided with bitstream, most often on Access Option 1 (A1). It is therefore in the opinion of the PTA more reasonable to take into account development of the price of local loops with bitstream (most often in Access A1), as this is the product that Mila's customers use in far most instances, i.e., about [...] % of instances. The price difference is 32.5% in the case of fibre-optic local loops with A1.

719. As stated here above in Section 6.6.5, it is the opinion of the PTA that the Mila price difference in question is explained by varying underlying costs, among other things because of varying deployment costs, varying population density of communities and because of varying economy of scope between urban and rural areas, rather than by varying competitive pressure between these areas.

720. It should be noted that if prices are variable between areas, this does not necessarily mean that the market should be automatically segmented geographically in accordance with such price difference of the potential SMP operator. The problem with such an approach was that the potential SMP operator could then have a direct impact on geographic definition of the relevant market as price control was not in place, including segmentation of areas, and/or price difference could change at any particular time in accordance with his pricing policy. It would therefore be more appropriate to investigate the underlying reasons for the variations in pricing.

721. In the market analysis conducted by the Swedish NRA, PTS, from the autumn of 2019, on which the EU Commission exercised its veto in February 2020 and which was presented here above in Section 5 and in more detail in Appendix A-1, it was among other things stated that local networks in the country had had the tendency to price wholesale access according to cost and only to a limited degree by taking account of the pricing of the SMP operator in that country, Telia. The prices of local networks in instances of connections to multi-unit dwellings were anything from SEK 500 to SEK 4,000, while to single unit dwellings they ranged from SEK 140 to SEK 220. The PTS had considered that this difference was based rather on housing density and varying deployment costs than on competitive conditions between areas. The EU Commission made no comment on the latter issue but came to the conclusion that the PTS had not succeeded in demonstrating that the prices of local networks were comparable to Telia prices. On the contrary, PTS had identified a difference between wholesale prices of the various local networks. With this in mind, the Commission issued an opinion to the effect that there was insufficient homogeneity in access prices on the relevant market for fibre-optic in Sweden.

722. In the opinion of the PTA, it is clear that the price difference between Telia and local networks in Sweden is much greater than is normally the case between Mila and local networks in this country, and in addition to this the importance of local networks is considerably less in this country than in Sweden. Only a few percent use such underlying networks in this country against tens of percentage points in Sweden. The Telia market share in Sweden is only 37% nationwide, while the Mila share is 57% in this country when one considers copper and fibre-optic local loops. This case is therefore in no way comparable in the opinion of the PTA. If one only considers local loops over fibre-optic, Mila had 32% market share at the end of 2020, while this market share was almost none in 2015. Siminn is also the largest provider of broadband service over fibre-optic local loops in the country. The PTA considers that this development will continue throughout the lifetime of the analysis and that the market share of Mila and Siminn in fibre-optic will rapidly increase throughout this lifetime.

723. Finally, in Section 6.6.6 here above, the PTA discusses aspects that could potentially indicate variations in competitive conditions between areas other than those already covered. They included factors such as marketing policy, market behaviour, service offer, quality of connections and nature of demand. In short, the PTA found almost no geographic variation in the above specified aspects with Mila and nor with the company's significant competitors.

724. As previously stated, is not necessary that competitive conditions are precisely the same in the various areas for the country to be considered a single geographic market. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are really different that cannot be considered to jointly constitute the same geographic market. *Real* competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications companies, for example in their pricing and service offer, and the impact of this behaviour on the structure of the market, for example market share and network deployment.

725. With all the above in mind the PTA considers it not justifiable to segment varying geographic markets in this country, i.e., on the one hand the 17 municipalities selected above for further analysis and on the other hand the other municipalities in the country. Competitive conditions are not sufficiently heterogeneous between these areas for this to be justifiable. Though there is a certain difference in market structure between the two areas in question, among other things with regards to deployment of the fibre-optic networks of Mila competitors and with regards the market share, this difference is not reflected in behaviour of the Siminn Group or of competitors between these areas in a sufficiently clear manner and is furthermore

thus not passed on to consumers in the form of variations in price, quality, service offer and other aspects that should affect consumers if competitive conditions varied significantly between areas. The competitive pressure faced by Mila is thus not sufficiently different between these two areas on the relevant market, to be considered significant.

726. In Sections 10.6 and 11.6 there will be discussion on whether there are, nevertheless, sufficient variations in competitive conditions between these two areas to justify the imposition of varying obligations on Mila in the areas in question on the relevant wholesale markets.

7 Geographical definition of wholesale market for central access provided at a fixed location for mass-market products (Market 3b)

7.1 General

727. As has been stated here above a geographic market covers a geographic area where stakeholder undertakings participate in supply and/or demand of the relevant goods or services where conditions for competition are the same or sufficiently homogeneous and where it is possible to differentiate the geographic area from neighbouring areas where conditions for competition are significantly different. In other words, a market should be defined as the area where the product in question is offered to customers, where there are similar and sufficiently homogeneous competitive conditions. It is therefore not necessary that competitive conditions of electronic communications companies are precisely the same in the various areas. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are really different that cannot be considered to jointly constitute the same geographic market.

728. *Real* competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications companies, for example in their pricing and service offer, and the impact of this behaviour on the structure of the market, for example market share and network deployment. In order to be able to analyse a distinct geographic market there must therefore be convincing indications, relating both to the structure of the relevant market and to the behaviour of parties to the market, that competitive conditions vary considerably from those in other areas within the state in question. Competitive conditions can vary between regions if competitors of the party with market dominance can exert significant competitive pressure in a specific region or regions which does not exist in another area or areas. The task then is to determine whether within a specific state, there is adequate homogeneity between regions (country all one market) on the one hand or on the other hand significantly different market conditions (segmented geographic markets or varying obligations by region).

729. As has been detailed here above there is the possibility of imposing varying obligations by region on electronic communications companies that have been designated as having SMP, in order to react to the varying competitive conditions between regions should there not be grounds for dividing a specific service market into more than one geographic market. So less is needed for it to be possible to prescribe varying obligations than is the case with respect to the geographic delineation of markets.

730. The process of demarcation of geographic market is according to the above-mentioned ESA guidelines, the same as that which applies to the definition of product and service markets, among other things with respect to evaluation of demand- and supply-substitutability between regions. Homogeneity of competitive conditions is then examined, among other things, taking into account the distribution of new electronic communications networks, pricing and service characteristics. To prevent a huge number of small markets it could be useful to aggregate areas where comparable competitive conditions exist, into one geographic area.

731. In geographic definition of markets, it is also necessary to take expected future developments into account, among other things with respect to distribution of networks and market share.

732. It has furthermore been stated here above that the starting point of geographic analysis should generally involve an examination of competition conditions on related retail markets if obligations were not in place on the relevant wholesale market (modified greenfield approach).

7.2 The PTA Decision no.21/2014 with respect to wholesale market for bitstream access

733. In the last PTA decision on the market in question, see PTA Decision no. 21/2014, the Administration came to the conclusion, subsequent to a rather basic pre-examination, that the geographic market was the whole country, i.e., that there was no reason to segment the geographic market or to apply varying obligations by region. Competition conditions were not sufficiently heterogeneous between individual regions to justify dividing the country into regional markets and in addition to this, the boundaries in distribution of access networks provided at a fixed location were unclear and in continuous flux. In addition to having a dominant position in those areas where there was little or no competition, Mila, in the opinion of the PTA, still had a very strong position in those areas where another network was also on offer, and the company had almost without exception a market share of over 50% in all areas. Nowhere in Iceland were there more than two technical solutions on offer for bitstream access through a fixed line network. For this reason, it was not possible to delineate an area where competitive conditions significantly varied from conditions in other areas.

734. It was thus clear that Mila would be designated as an undertaking with SMP on all the geographic markets that it was possible to define. The PTA stated that this was in accordance with the conclusions of 27 states of 31 in the EEA for the market in question. Only the United Kingdom, Finland, Hungary and Portugal had segmented the market in question by geographic area, and that had been for historical reasons in the first three of the countries named above. A few states had abandoned such plans as a result of serious objections from the EU Commission. It was clear that the situation in Iceland was not comparable to the situation in those countries that had defined more than one geographic market. For this to be the case technical solutions in Iceland would be too few and network operators offering bitstream access too few, and then there was the fact that Mila would have too dominant a position in all areas. Then there were three countries, i.e., Austria, Poland and France, that had prescribed varying obligations by area, even though the geographic market had been defined as the whole country. ESA raised no objections to the above specified intention of the Administration regarding geographic definition of markets.

735. More precisely, it was stated in the PTA Decision in question, that assessment of geographic market for bitstream access needed in the first place a study of the scope of access networks being examined here. It was clear that local loops that could transmit broadband bitstream did exist in almost all regions of the country. The PTA believed that it was possible to serve about 95% of the households in the country with bitstream service through fixed local loops, that is to say with xDSL technology through copper local loops or through fibre-optic local loops.

736. In addition to this the jurisdiction of the Electronic Communications Act was the whole country and authorisation for companies to operate bitstream service covered the whole country and was based in all instances on the same laws and regulations.

737. It was furthermore necessary to take into account substitutability of the bitstream service that was on offer across the whole country, e.g., by using the SSNIP test. It was fair to say that it was very unlikely that a sufficient number of consumers would decide to move to a new house to another market area because of a 5-10% price increase in bitstream service in their area. It was also unlikely that more network operators than were currently operating in this country would embark on establishing their own networks subsequent to this kind of price increase, on competitive grounds. It was also difficult to say how likely it would be that a sufficient number of purchasers would switch service provider after such a price increase. This was mainly because in many places there was only one service provider or because technical difficulties hindered switching (such as lack of space for VDSL equipment in street cabinets). This had the effect that competitive pressure from those who leased local loops would inevitably be less if they had to accept not using their own equipment and instead had to purchase bitstream service from the network owner. The SSNIP test could thus lead to many and small markets and would thus neither be realistic nor useful in the circumstances that pertained on the relevant market in this country. It was therefore necessary to emphasise competitive conditions and to investigate whether they were sufficiently homogeneous over the whole country for it to be considered one and the same geographic market. It was also necessary to take into account how access would be offered in the future, with particular reference to changed technological solutions that, for example, did not support traditional sharing of lines in street cabinets.

738. The distribution of new access networks did not seem to follow any particular pattern if one looked at the country as a whole. For example, the situation was not that the most densely populated areas were connected to the new network systems and the others not. Also, the boundaries were still unclear within specific municipalities. A good example was the Capital City Area where GR was installing a fibre-optic system and Mila was rolling out a VDSL system. No clear geographic boundaries determined which areas were fully connected to the systems in question and in addition to this, the boundaries changed very rapidly, and development was unpredictable. One could thus find varying competitive conditions within the same municipality. For example, new access networks had not been deployed everywhere in built-up areas in the Capital City Area except to a small degree, for example in Hafnarfjörður, Garðabær, Kópavogur and Mosfellsbær. The same could be said for certain districts in Reykjavik. In March 2014, GR had completed rollout of fibre-optic to about 95% of households in Reykjavik and it was projected that the rollout of fibre-optic to Reykjavik would be completed in the year 2015. The development by GR had for example partly been in step with maintenance or renewal of other kinds of ducts in the company's service area, for example for water or electricity. It was thus extremely difficult to specify clear boundaries between areas on the basis of differing competitive conditions because even within areas where fibre-optic connections were on offer, circumstances could vary (for example where VDSL was offered, new districts where copper local loops were not installed and specific regions) and for this reason, the areas that needed to be defined would be very many, small and varied, which meant that this would be an excessive burden on the regulatory body and on the electronic communications companies.

739. If one considered distribution of the electronic communications networks being examined, then the PTA considered in the light of the fact that the market in question did not among other things, cover xDSL technology through copper local loops, which should be able to serve over 95% of the households in the country and almost all companies, that it would be proper to designate the market in question as the whole country. Fibre-optic local loops reached about 40-45% of households in the country, while active connections reached something over

17% of the country's households. Fibre-optic local loops were in the same areas where copper local loops already existed and so this was neither a case of a separate market because of the distribution of access networks nor a real substitute service because of the limitations on distribution within the area or at a national level. At the end of 2013, the share of xDSL connections had been about 70% and fibre-optic about 22% of bitstream connections over a fixed access network.

740. The PTA believed that pricing by the market should be taken into consideration rather than varying costs in specific areas for providing the service in question. The same tariff for xDSL service applied to the whole country with Mila, where it was technically possible to offer such service. Other service providers on the market in question offered a tariff independent of the location of the user in their distribution areas. In addition to this, the tariffs for bitstream services provided with xDSL technology through copper local loops on the one hand and fibre-optic technology on the other hand were similar.

741. When one considered substitutability on the demand side it was clear that taste and purchasing patterns were similar with respect to technology and electronic communications in the Capital City Area and in the countryside, according to a survey by Statistics Iceland on computer and network usage. Supply substitutability was less significant and was rather related to assessment of possible existing competition, with respect to bitstream, because of the extensive distribution of copper local loops.

7.3 Deployment of networks, deployment plans and network topology

742. As previously stated, the Mila copper network covers the whole country, i.e., to all households and companies in the country, after having been developed throughout a century long history of the country's state operated telephone system. Subsequent to the monopoly being lifted, the copper system was also improved and renewed to be able to meet increased demand for data transfer, in the first instance because of dial-up connection modems and then after that for ADSL and VDSL. It was true that in recent years, Mila has only deployed fibre-optic local loops to new buildings and not copper local loops, and in addition to this Mila had too small degree, decommissioned copper local loops were fibre-optic local loops were available in spaces. At the end of 2020, the situation was that the Mila copper network reached 140,496 spaces (homes and companies) of 163,209 (of which 139,343 were homes and 23,866 were companies), which represents 86.1% of spaces in the country. At the end of 2020, active bitstream connections in the country were 138,582, of which 77,000 were with Mila, which were divided [...] between copper and fibre-optic local loops with that company. Bitstream connections over fibre-optic network have however become about 70% of the total number of such connections. In the autumn of 2020, Mila announced plans to decommission the company's copper system in phases over the coming 10 years.

743. Fibre-optic networks have achieved significant distribution during what must be considered a period of relatively few years. There was a total of 83% of homes and companies with access to a fibre-optic network at the end of 2020, of which 87% were homes and 63% companies. Because of uncertainty about differentiation between the market for residences and the corporate market, i.e., for companies that do not need high quality connections and of information about the number of buildings and spaces where companies are operating, exact figures are not available on the proportion of companies with access to a fibre-optic network.

744. Copper local loops in use have decreased significantly in recent years. They were about 114,000 at the end of 2016 and were about 58,000 at the end of 2020. At the end of 2020, fibre-optic local loops in use with Mila were about [...], but as the company uses fibre-optic local loops from other network operations to a significant degree, the company's bitstream connections over fibre-optic local loops are about [...] on the company's GPON system. There was a total of 90,500 Mila copper and fibre-optic local loops in use at the end of 2020, of about 159,000 local loops in use and Mila bitstream connections in use were about 77,000 of about 138,500, which represents a 57% market share. A large majority of Mila local loops in use are thus still copper local loops, or [...]%, though the difference is shrinking rather quickly. As previously stated, the proportion in bitstream with Mila is [...] between copper and fibre-optic networks.

745. In Mila replies, dated 22 September 2020, to a query from the PTA, dated 7 September 2020, the company's plan was presented for decommissioning copper over the next 10 years. Shortly later, Mila announced this plan to electronic communications companies. It was stated that the plan was still subject to a number of imponderables and that Mila had not been able to predict the number of connected copper local loops in the next years. The plans were divided into three main phases, i.e., over the next five years these would be locations where fibre-optic rollout had commenced, was well developed or completed. This applies to all of the Icelandic rural areas (Iceland Optical Connected), the Capital City Area and to all urban kernels to which the above description applies. During the following 5-7 years, there would be locations where fibre-optic rollout had commenced and where there were clear plans in place. This applied to very many urban areas outside the Capital City Area. In the coming 7-10 years such locations would be urban areas where fibre-optic rollout was very limited today, new buildings would be connected to fibre-optic but where there would be no clear plan yet elaborated. It was then stated that this phasing of the task was presented with reservations and would take into account progress in fibre-optic and 5G rollout in this country.

746. In recent years, Mila has developed an extensive access network using PON fibre-optic topology and has assured access for itself to the fibre-optic networks operated by other parties, where the company installs GPON equipment for active access service. Mila has also been purchasing or leasing long-term the various local fibre-optic networks in the countryside that have been developed during recent years with financial contributions from the Telecommunications Fund, and also in urban areas such as Gagnaveita Skagafjarðar, which among other things developed a fibre-optic network at Sauðárkrókur. It is not unlikely that such purchases by Mila will continue during the lifetime of this analysis.¹²⁰ Mila furthermore

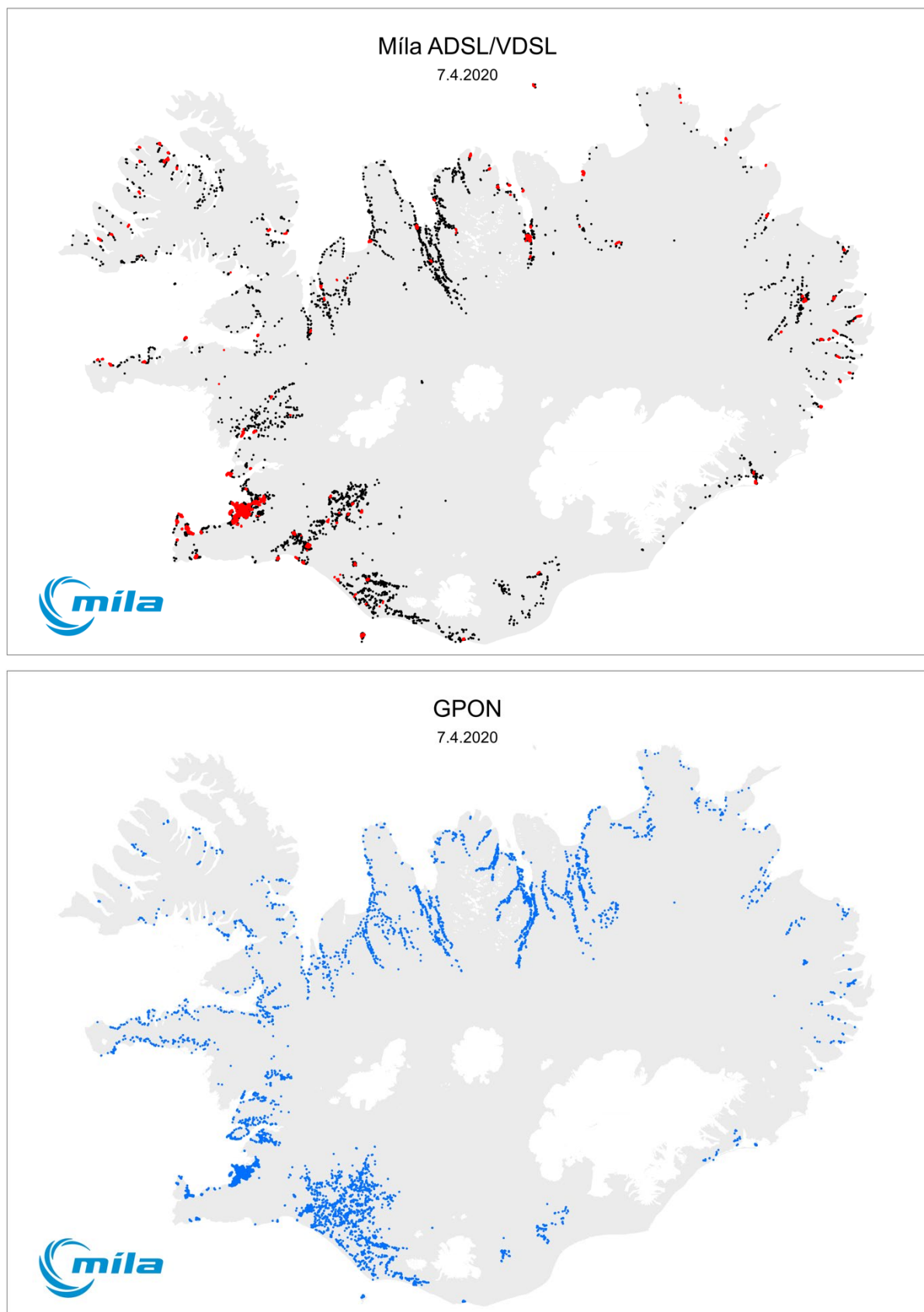
¹²⁰ The PTA has information to the effect that Mila has deployed with state aid or purchased partly or entirely 16 more specified local networks that will be shown here below. The connections in question are about 1,600 of a total of more than 6,000 fibre-optic connections in rural Iceland that have been deployed or will have been deployed when the Iceland Digital Connected project completes in 2022 or 2023. The projects are in areas where the market has failed, and most have received a grant from the state or municipality in one way or another in order to level living conditions between these areas and urban areas. Mila has assisted municipalities that have so requested, in this venture, both with advice and access to ducts or Mila trunk line fibre-optic. Mila has also served many, small local networks with bitstream service where other parties have not felt themselves able to provide service. The networks in question are: Akrahreppur, Akraneskaupstaður (rural), Blönduósbaer (rural), Borgarfjarðarhreppur, Fjarðabyggð, Grímsnes- and Grafningshreppur, Grundarfjarðarhreppur, Húnaþing vestra, Mosfellsbaer (rural), Rangárþing Eystra, Reykjavík (rural), Skaftárhreppur, Skagabyggð, Skagafjörður, Snæfellsbaer and Sveitarfélagið Skagaströnd (rural). In the following additional 7 local networks, there is mixed ownership of local loops or Mila leases the local loop system, either long-term or manages operation of the system: Strandabyggð, Súðavíkurbhreppur, Svalbarðshreppur and rural Langaneshreppur, Vesturbyggð, Vogar (rural), Vopnafjörður and Grindavík (rural). This is a total of 23 countryside networks that Mila has either deployed,

provided GPON service on almost all other local fibre-optic networks in the country (except the GR network, apart from a small part of Árborg and Borgarbyggð). Mila therefore operates in most of the country's municipalities in the field of bitstream access through fibre-optic.

747. Mila fibre-optic local loops reached at least 77,000 homes and companies at the end of 2020 of about 163,000, where about 159,000 of these 163,000 were connected to a local loop. The company expects vigorous fibre-optic deployment to continue during the coming years. Mila distribution of fibre-optic networks has thus reached at least 47%. Given Mila distribution plans, it is clear that this proportion will significantly increase throughout the lifetime of the analysis. Mila bitstream connections therefore reached the above specified fibre-optic local loops of that company, and to the company's copper network which had close to the national coverage, and Mila furthermore provides bitstream service on the fibre-optic networks of various local networks, for example on the Tengir network. Distribution of Mila's bitstream network reached more than 149,000 homes and companies at the end of 2020, including ADSL and/or VDSL to more than 140,000 and the Mila GPON network reaches nearly 90,000 homes and companies. There is therefore a significant number that has both access to Mila bitstream over a copper network and a fibre-optic network. The figures below show distribution of Mila bitstream service at end of year 2020.

purchased or assured long-term control. In addition to this, Mila provides GPON service and collects the local loop charge for the owner of the network for the below specified 18 local networks: Ásaljós, Fjarskiptafélag Skeiða- and Gnúpverjahrepps, Rangárljós, Húnanet, Orkufjarskipti, Ljósfesti, Hrunaljós, Dalaveitur, Vopnafjarðarljós, Snerpa, Leiðarljós, Flóaljós, GR (Árborg and Borgarbyggð), Fjarðabyggð (part of the network), Bláskógaljós, Hrafnshóll, Ljósleiðari Borgarbyggðar and Skaftárljós. Finally, Mila provides GPON service through 10 local networks but does not collect the local loop charge for the owners of the networks in question. They are: Tengir, Eyja- and Miklaholtshreppur, Helgafellssveit, Fjarskiptafélag Reykhólahrepps, Hitaveita Drangsness, Ljósþunktur, Fjarðabyggð, Gagnaveita Hornafjarðar, Hótel Laki and Hvalfjarðarsveit. This is a total of 51 local networks that Mila owns, leases, is involved in some way in operating or on which it provides bitstream service. The PTA assumes that this development will continue to some extent during the lifetime of this market analysis, such that more local networks will become the property of Mila or that the company will lease them or deploy them with state aid.

Figure 7.1 Distribution of Mila bitstream service



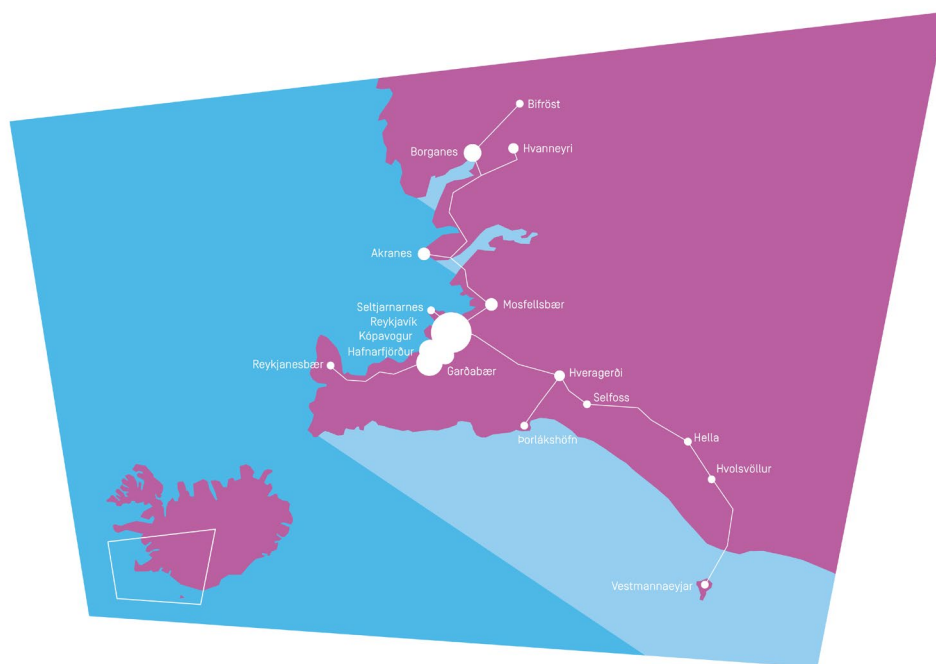
Source: Míla.

748. From the above it is clear that copper connections in use with Mila have been on the decline in recent years, but the company's fibre-optic connections have also increased significantly over the same period, as has deployment of the company's FTTH networks. One can expect continued development in this direction during the lifetime of the analysis. The above specified plan for decommissioning the Mila copper system is very general and sketchy, and in addition to this, it is presented with reservations. The PTA considers that Mila will during the lifetime of the analysis, continue to have a local loop network with almost national coverage, which comprises both copper and fibre-optic connections. The PTA expects that during the lifetime of the analysis, Mila will first and foremost close copper connections where the company has already connected with fibre-optic or ensured long-term control over fibre-optic local loops. If Mila does not own or have long-term control over fibre-optic local loops at any locations at the end of the lifetime of the analysis, this will, in the opinion of the PTA, be first and foremost in sparsely populated rural areas that will not have an impact on the overall conclusion of this analysis.

749. Figure 7.3 here below shows growth in leased fibre-optic local loops owned by Mila, but the organised Mila fibre-optic rollout did not get under way until 2016. Mila has however deployed fibre-optic local loops in new build areas and to companies for a longer period of time. As is seen in the figure, there is significant growth in Mila leased fibre-optic local loops in recent years.

750. Gagnaveita Reykjavíkur (GR) has a history stretching back more than a decade and operates first and foremost in the utility territory of Orkuveita Reykjavíkur, and one could say that the company operates from Bifröst, Borgarnes and Akranes in West Iceland, in the Capital City area, and East to Hvolsvöllur in South Iceland and in Reykjanesbær. GR says that the company's operational territory is the whole country, but it is clear that the company's operational territory today is only the Southwest corner of the country. The PTA does not expect that this will change in the lifetime of the analysis, except possibly on Market 3b, if the company makes agreements on access to dark fibre of parties like Tengir and/or other local fibre-optic networks, over which to provide the company's bitstream service. GR only provides access on Market 3b with P2P active topology to its network but does not provide access to Market 3a, as is also the case with Tengir in North Iceland. At the end of 2020, the GR fibre-optic system reached about 67% of homes and companies of about 163,000 in the country. In its plans, GR projects that the company's fibre-optic network will reach about [...] households and companies at the end of at the end of 2023. The company's distribution plans for its own fibre-optic network are therefore rather modest during the lifetime of the analysis, given development of recent years and the Mila distribution plans for the same period. If the company acquires local loop access to the Tengir fibre-optic network and those of smaller countryside networks, the company's bitstream service could reach about [...] spaces at the end of 2023, but in the opinion of the PTA, it is not certain that this will happen during the lifetime of this analysis.

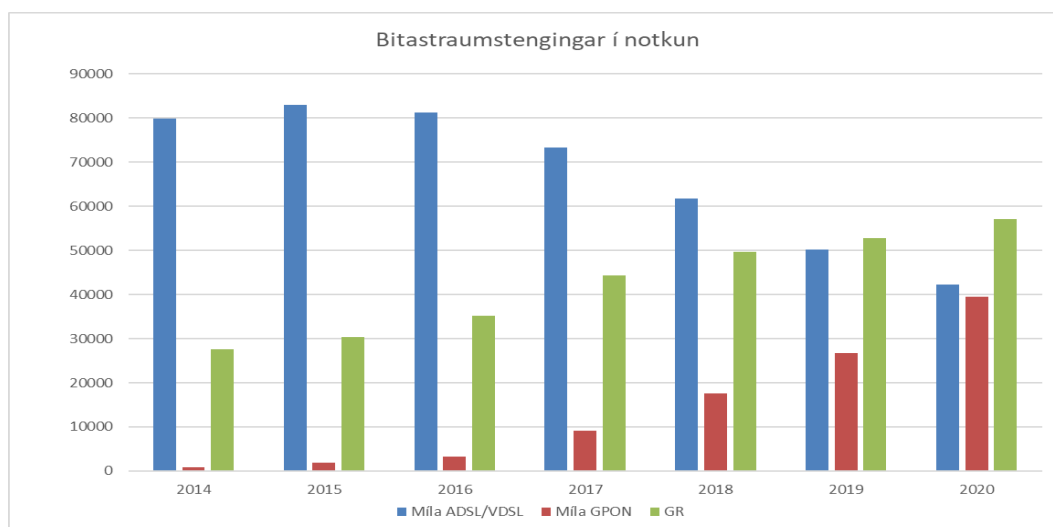
Figure 7.2 Gagnaveita Reykjavíkur distribution area



Source: Gagnaveita Reykjavíkur

751. The following figure shows the number of leased GR fibre-optic local loops until the end of 2020, and the GR fibre-optic rollout has been taking place over a much more extended period of time than the Mila fibre-optic rollout. The figure provides a good figure of GR, both on Market 3a and 3b, where the company does not sell access to its local loops on the residential market on Market 3a, but rather, such that bitstream service is included. At the end of 2020, GR fibre-optic local loops and thus with bitstream connections in use were about 57,000.

Figure 7.3 Number of bitstream connections in use 2014-2020

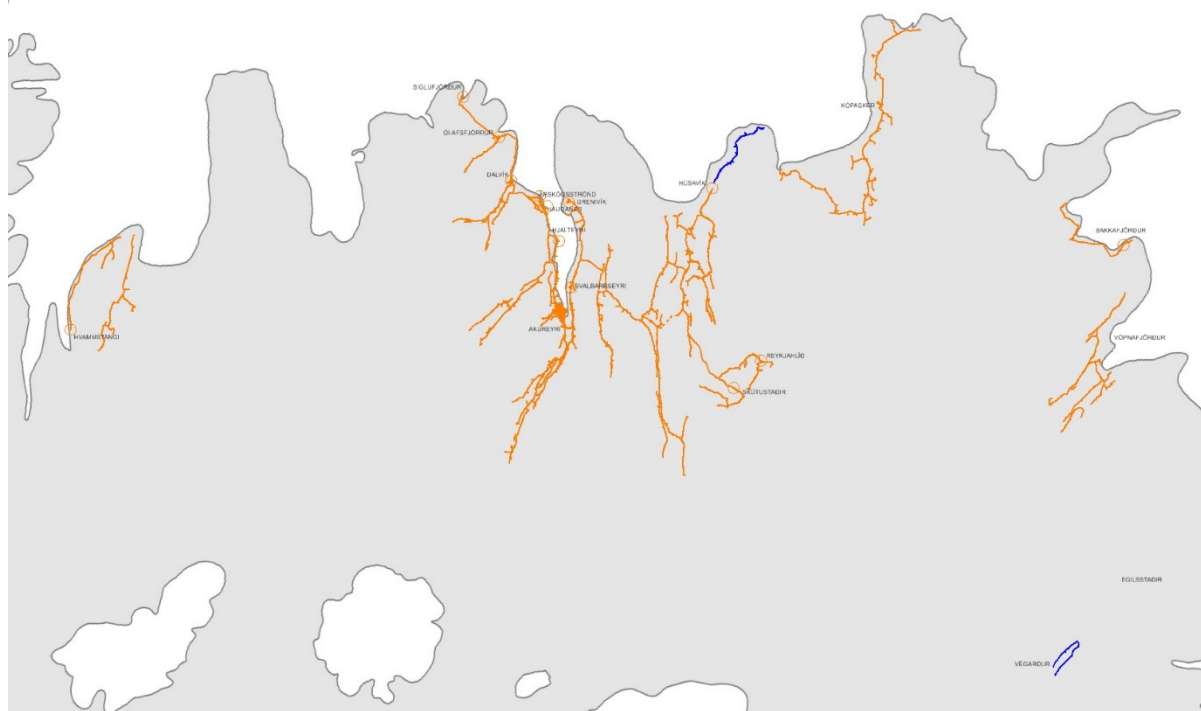


752. As can be seen in the above specified figure, the increase in GR leased bitstream access has slowed down significantly since the beginning of 2018.

753. Tengir operates in the Eyjafjörður area, Akureyri and neighbouring municipalities, but also in the eastern part of North Iceland to Tjörneshreppur and in Þingeyjarsveit, Bakkafjörður og Vopnafjörður and the company operates a small network in Húsnþing vestra. The company also operates bitstream equipment in the countryside network of Fljótsdalshreppur in East Iceland. In the Tengir operational territory, that company, unlike GR, offers P2P access to both Market 3a and Market 3b, on those fibre-optic networks owned by the company, but otherwise only bitstream access on networks owned by other parties.

754. The Tengir network reached 9,500 households at end of year 2020, which is about 6% of spaces at a national level, and the company expects to increase its distribution such that it will reach about [...] spaces at the end of 2023. These distribution plans are also rather modest given the Mila distribution plans, i.e., approximately [...] % of total spaces in the country. The GR and Tengir fibre-optic networks, thus reached about 73% of total spaces in the country at the end of 2020, and it is expected that this proportion will increase by a few percentage points during the lifetime of the analysis such that it will reach [...] % at the end of 2023, including the networks of Snerpa and Austurljós, and given that the annual increase in spaces at a national level will be 3,000 per annum.

Figure 7.4 Tengir distribution territory



Source: Tengir

755. As previously stated, Tengir provides access to Markets 3a and 3b. Mila purchase among other things access to the Tengir fibre-optic network on Market 3a, to provide its bitstream service in the Tengir operational territory, and additionally Mila owns an extensive copper network in the area and has also deployed some fibre-optic. In the Tengir operational territory, this company's market share was for example about [...] % at the end of 2020 on Market 3b,

while correspondingly this was [...] % for Mila. Tengir market share is thus significantly smaller on Market 3b than on Market 3a. The Tengir bitstream service is small in comparison with those of Mila and GR, at a national level. It would hardly be seen as a bar in the above specified figure and was thus omitted.

756. At end of year 2020 Snerpa had deployed fibre-optic to just under 1,200 spaces in the West Fjords, first and foremost in the Ísafjarðarbær municipality, which includes Ísafjörður, Hnífsdalur, Suðureyri, Þingeyri and Flateyri, and Snerpa has also deployed networks in Bolungarvíkurkaupstaður, Tálknafjarðarhreppur, Súðavíkurhreppur and in Vesturbyggð (Bíldudalur), which represents about 0.5% on a national level and about 42% of connectable spaces in the company's operational territory. The company expects distribution to reach [...] spaces at the end of 2023, which represents [...] % of the total. Snerpa thus operates on Market 3b on its own fibre-optic network and on the Mila copper network. The Snerpa market share in its operating territory on Market 3b is [...] %, at the end of 2020 while it is [...] % for Mila. Snerpa bitstream service is very small in comparison with Mila and GR at a national level and is therefore omitted from the above specified figure, as the bar would hardly be visible.

757. At end of year 2020 Austurljós had deployed fibre-optic to about 200-300 spaces at Egilsstaðir in East Iceland, where there were about 60 subscribers. This company's plans for further deployment are modest for the coming years and this will be decided by demand. The Austurljós market share is thus negligible. At the beginning of 2021, Austurljós commenced operating its own bitstream service and Internet service in retail. The company intends to grow by about [...] customers per annum with this offer. It should be noted that Mila had also deployed fibre-optic at Egilsstaðir to just over 600 spaces in the autumn of 2020, and the company is further expanding its fibre-optic network at that location in 2021.

758. Kapalvæðing operates a cable system in Reykjanesbær which reaches just under 4,000 spaces in that town, but the usage of this system is less than [...] %. In Section 4 here above, the PTA came to the conclusion that the cable system did not belong to the relevant wholesale markets. In addition to this, the company does not offer local loop or bitstream access to the system, as no electronic communications company has shown interest in such access, and this access is technically challenging. The PTA considers that the cable system in question has no impact on Market 3a, as the company's market share is negligible at national level and not significant in the municipality in question. On Market 3b the Kapalvæðing market share in Reykjanesbær was just about [...] %¹²¹ at the end of 2020 against [...] % Mila market share. No service provider has requested access to Kapalvæðing bitstream service. It is worthy of note that Kapalvæðing made an agreement on bitstream access to the GR fibre-optic network in 2020.

759. Tens of small fibre-optic networks have been deployed in the countryside widely across Iceland with public financial support, first and foremost through the Iceland Optical Connected project operated by the Telecommunications Fund¹²², but also with funding from

¹²¹ This included those bitstream connections that Kapalvæðing has on its FTTH network. As stated in Section 4.2.4, PTA considers that the company's DOCSIS cable system does not belong to the relevant market and those connections are therefore not included when market share is calculated.

¹²² The Telecommunications Fund has the role of supporting the development of electronic communications on the basis of government's electronic communications plan, and the fund is under the auspices of the Ministry of Transport and Local Government. It is the clear policy of the Icelandic authorities that all of the country's households and companies shall have the option of a fibre-optic connection. The purpose is to improve living conditions and increase citizens' opportunities for job creation across the whole country. The objective is that

municipalities and/or from the residents themselves. The project is one of the key tasks in government's regional planning where the objective is to deploy fibre-optic networks outside marketing territory in rural areas across the whole country. In addition to the grants from the Telecommunications Fund, municipalities have also had the option of applying for a regional development grant on the basis of the government's regional planning. Though the vast majority of projects have been funded partly with grants from the Telecommunications Fund, there are a number of examples of such development in rural areas that municipalities and/or local residents have embarked on without such public funding. In April 2021 there were 69 municipalities in the country, whereas in the middle of the 20th century they were at most 229. From and including the 9th decade of the last century, emphasis was placed on merging municipalities in order to increase efficiency in their operations and improve service.

Figure 7.5 Overview of municipalities and their boundaries



760. Early in 2020 a draft bill for amendments to legislation on local authorities was published for consultation in the government's consultation portal, and this bill will had provisions on minimum number of inhabitants in municipalities. The bill was part of a parliamentary opinion on policy-making plan for issues related to municipalities for the years 2019-2033, and an action plan for the years 2019-2023 which was endorsed by the Althingi on 29 January 2020.

99.9% of residences and companies will have the option of a 100 Mb/s Internet connection by the end of 2021. The fund formally commenced operations in the beginning of 2006 on the basis of an Act passed in the Althingi at the end of 2005, subject to the sale of the state holding in Siminn hf. The main task of the Fund from the outset was to provide funding for projects that aim to develop electronic communications networks, projects that enhance nation's security and competitiveness in the field of telecommunications and other tasks, and they are prescribed in the electronic communications plan, and it is assumed that they would not be tackled on a strictly commercial basis.

On 30 November 2020, the bill was put to the Althingi in the first reading took place on 26 January 2021 and was finally referred to the committee for the environment and transport on the same day.

761. In Article 1 of the bill, it was stated that the minister should take the initiative in merging municipalities if the number of inhabitants of the municipality had been lower than 1,000 for three consecutive years. It would be possible to grant a temporary exemption for up to four years in specific circumstances. In the temporary provision, it was stated that despite the above, a municipality that had fewer than 250 inhabitants it was not obliged to merge with another or other municipalities until prior to general local government elections in 2022 and a municipality that had fewer than 1,000 inhabitants not until prior to general local government elections in 2026. It was then stated in Paragraph 2 of Article 12 of the bill, that the minister would not take the initiative in merging municipalities where the number of inhabitants was below the minimum level during the election years in question prior to two years after the elections in question had taken place, i.e., the years 2024 and 2026. The bill did not constitute a deviation from the fundamental policy stated in local government legislation that the power to decide and structure the organisation of municipalities was in the hands of their inhabitants, but rather that a condition was made that for such a decision to be made by inhabitants there must be a minimum number of inhabitants in the municipality in question.

762. In the memorandum to the bill, expectations were expressed that the material import of the bill would encourage municipalities to commence a debate on which units would form the strongest administrative units in each individual region, of which one could observe indications. The bill thus constituted an opportunity for regions to initiate cooperation on a more democratic basis than before to protect communal interests, strengthen public administration and increase the level of service. It was therefore hoped that it would prove to be an absolute exception if the minister needed to take the initiative in the merging of municipalities. It was then stated that subsequent to local government elections in 2022 municipalities could diminish in number by at least 14, i.e., from 69 to 55 and by approximately 40 subsequent to the elections in 2026 when they would then be 30.

763. The law was passed by the Althingi on 13 June 2021, but in a considerably changed form compared to the bill. The Minister's duty of initiative in merging municipalities was abandoned and instead it was stipulated that the aim should be for the minimum population of a municipality not to be less than 1,000. If the population were below this criterion in a general municipal election, the local government in question should, within one year of the municipal election, seek to achieve the minimum number of inhabitants by initiating formal merger negotiations or drawing up an opinion on the municipality's status and the possibilities of merging the municipality with another or other municipalities.

764. Apart from the above legislative changes, exploratory discussions on merging of municipalities are taking place widely across the country, and there is also the fact that municipalities in East Iceland merged in 2020 into a unit called Múlaping, i.e., the former municipalities of Fljótsdalshérað, Djúpavíkurhreppur, Borgarfjarðarhreppur and Seyðisfjarðarkaupstaður. With this, municipalities decreased in number from 72 to 69. On 5 June 2021, a general election was held to merge the municipalities of Skútustaðahreppur and Þingeyjarsveit in Northeast Iceland and the merger was approved by the residents of the said municipalities. Next a special board will be appointed to prepare the establishment of the merged municipality and therefore chooses a name for the merged municipality. A formal merger is expected to take place in 2022. The country's municipalities will therefore be 68 in 2022. On the same day, the residents of the municipalities of Skagabyggð, Skagatrönd,

Blönduósbær and Húnavatnshreppur in the Northwest Iceland rejected plan of merging the municipalities. In the opinion of the PTA, it is difficult for the PTA to predict what the number of municipalities will be in the country at the end of the period of validity of this analysis, but the PTA does not expect a significant drop in the numbers during this period, whatever may subsequently transpire.

765. The project, Iceland Optical Connected, began formally in the spring of 2016 and the initial plan was for the final allocation from the fund to be made in the year 2020, with the objective that all interested municipalities would complete deployment of fibre-optic in the rural areas by the end of the year 2021 at the latest. In a news item on the ministry website on 22 March 2020 it was stated that it was expected that when the project had run its course it would have reached 5,850-6,000 locations across the country that were eligible for funding. In a news item on the web page in question on 3 February 2021, it was stated that the objective of the authorities was that the involvement of the state in funding the project for fibre-optic rollout to rural Iceland outside market areas, Iceland Optical Connected, would end in 2021. According to the most recent information held by the PTA, it is not likely that civil works on the last connections in connection with the project will complete before 2022 or even 2023, particularly in wide-reaching municipalities such as Múlaþing and Borgarbyggð. The project was an integral part of government policy for fibre-optic rollout to the whole country by the end of 2025.

766. The first year of funding was for the year 2016, when 14 municipalities received funding for fibre-optic deployment in rural areas, for a total of ISK 450,000,000 where the grant for each municipality was in the range of ISK 4,600,000 to ISK 118,000,000. They were the following municipalities:

- Blönduósbær
- Borgarbyggð
- Eyja- og Miklaholtshreppur
- Fljótsdalshérað (now part of Múlaþing)
- Húnavatnshreppur
- Húnaþing vestra
- Kjósarhreppur
- Norðurþing
- Rangárþing Eystra
- Rangárþing Ytra
- Súðavíkurhreppur
- Svalbarðshreppur
- Sveitarfélagið Skagafjörður
- Þingeyjarsveit

767. For the year 2017, grants totalling ISK 450,000,000 were also made to 24 municipalities, ranging from ISK 1,500,000 to ISK 53,500,000 per municipality. The municipalities Borgarbyggð, Fljótsdalshérað, Kjósarhreppur, Rangárþing Eystra, Rangárþing Ytra,

Sveitarfélagið Skagafjörður og Þingeyjarsveit received additional grants and 17 new municipalities received grants. They were:

- Akraneskaupstaður
- Breiðdalshreppur (now part of Fjarðabyggð)
- Dalabyggð
- Djúpvogshreppur (now part of Múlaþing)
- Fjarðabyggð
- Grindavíkurbær
- Grundarfjarðarbær
- Hrunamannahreppur
- Langesbyggð
- Reykhólahreppur
- Skaftárhreppur
- Skorradalshreppur
- Snæfellsbær
- Strandabyggð
- Sveitarfélagið Hornafjörður
- Sveitarfélagið Skagaströnd
- Vopnafjarðarhreppur

768. For the year 2018, grants totalling ISK 450,000,000 were also made to 24 municipalities, ranging from ISK 1,400,000 to ISK 74,100,000. In that allocation, 13 municipalities that had previously received grants, received an additional grant and in addition there were 11 new municipalities that received grants. They were:

- Bláskógabyggð
- Borgarfjarðarhreppur (now part of Múlaþing)
- Fjallabyggð
- Flóahreppur
- Grímsnes- and Grafningshreppur
- Ísafjarðarbær
- Kaldrananeshreppur
- Seyðisfjarðarkaupstaður (now part of Múlaþing)
- Sveitarfélagið Árborg
- Sveitarfélagið Vogar
- Vesturbyggð

769. In the year 2018, ISK 450,000,000 was again granted to 24 municipalities for projects that were to be implemented in the year 2019. The grants ranged from ISK 2,800,000 to ISK 165,800,000. In that allocation, 17 municipalities that had previously received grants, received an additional grant and in addition there were new municipalities that received grants. They were:

- Bolungarvíkurkaupstaður
- Tálknafjarðarhreppur

770. On 22 March 2019, the government signed an agreement with 23 municipalities. In a news item on the ministry's website that same day it was stated that the agreements offered 23 municipalities a total of ISK 1,475,000,000 during the years 2019-2021 in this phase of the project for the purpose of connecting up to 1,700 locations eligible for grants in addition to a great number of other buildings at the same time that do not receive grant. Municipalities' and residents' own contribution was significant, a minimum of ISK 500,000 for each connected location that was eligible for a grant. The grants aimed at ensuring project completion for most municipalities in question and thus mostly achieving the government's objective of connecting the country's rural areas were fibre-optic. The aim was to make the final allocation at the end of 2020, with the objective that all interested municipalities should complete deployment of fibre-optic in rural areas by the end of 2021 at the latest.

771. Grant amounts in this last phase were from ISK 3,200,000, up to ISK 527,000,000 (Borgarbyggð). Of these 23 municipalities in the last phase, only two were new, i.e.:

- Mosfellsbær
- The City of Reykjavík

772. On 12 June 2020, the awarding of grants to the amount of ISK 443,000,000 was announced for fibre-optic rollout in rural areas, of which ISK 317,500,000 was for municipalities, and Neyðarlinan received a grant of ISK 125,500,000 to deploy fibre-optic and develop electronic communications infrastructure outside market areas. Agreements were made on allocations from the Telecommunications Fund with 17 municipalities, and 8 of those also received regional grants from the government's regional plan. Three municipalities received grants that had not previously received any allocations, i.e.:

- Árneshreppur
- Grýtubakkahreppur
- Vestmannaeyjabær

773. In a news item on the ministry's web page, dated 12 March 2021, it was stated that 13 municipalities had the opportunity of applying for a grant for the final phase of Iceland Optical Connected, for a total amount of ISK 180,000,000. There one can find three municipalities that had not previously received grants i.e.:

- Reykjanesbær.
- Suðurnesjabær

- Akureyrarbær (for a trunk line to Hrísey)

774. This means that 48 of 69 municipalities in this country have received funding from the Telecommunications Fund project Iceland Optical Connected, and there are 3 that may be in addition to this. What these grants have in common is that they are connections in rural areas, often farms, where the cable routes are generally long and costs high for connecting the locations in question to fibre-optic. It could therefore not be expected that connecting such locations with fibre-optic would be market-driven. There is wide variation between municipalities that received grants in the proportion of total locations within the municipality that were eligible for grants. This proportion is often low, particularly in locations that include urban clusters and villages that are not eligible for grants and that have in most instances, access to VDSL connections.

775. According to the above, the Telecommunications Fund and the government have allocated just under ISK4 billion during the 6-year period in question (2016-2021) for the purpose of connecting more than 6,000 eligible locations in the most rural areas. The average grant for each eligible location is thus about ISK 650,000. Municipalities and/or residents have then provided the difference.

776. Of these, more than 6,000 state aided countryside connections that the intention is to be available when the project Iceland Optical Connected completes in 2022 or 2023, Mila has now ensured ownership or long-term control over at least 1,600 of them and the PTA expects that Mila will increase its share of these connections during the period of validity of the analysis. According to the PTA data for end of year 2020, there only appears to be active connections on something under 3,000 of the spaces up to this point in time. This means that the number of connectable spaces owned by parties other than Mila is about 125,000 at the end of 2020, which is about 76- 77%. So there remained about 38,000 spaces at the end of 2020 which fibre-optic networks of parties other than Mila do not reach. One can expect connectable spaces to have reached just under 140,000 at the end of 2023, but because of a natural increase in the number of spaces during the period, the total number is then expected to be about 172,000, which makes just over 80% distribution of fibre-optic networks other than that of Mila at the end of 2023. When the Mila fibre-optic network is taken into the equation, fibre-optic networks reached about 83% of spaces in the country at the end of 2020 and the PTA expects this proportion to be around or in excess of 90% at the end of the lifetime of the analysis.

777. The requirement in common for local networks that have received state aid is that they provide open access to their networks on Market 3a and/or Market 3b, and that access prices to the networks shall be based on benchmarking. It is therefore clear that such networks bear various obligations that do not rest on parties that have not received state aid or that have been designated as undertakings having SMP. It is clear that there is less likelihood of competition problems arising from the operations of such networks than from networks that do not bear obligations.

778. As specified above, a number of municipalities or residents have deployed fibre-optic without public funding, e.g., Hvalfjarðarsveit, Skeiða- and Gnúpverjahreppur and Fljótshlíshreppur. The above three municipalities have for example in common that they use income from power plants located in those municipalities.

779. Active access to these local networks is in a large majority of cases through Mila GPON service and through Tengir P2P service. Vodafone also has P2P equipment on a number of

networks, but this is a very significant amount. As previously stated, Mila has recently purchased many of these networks, ensured long-term control over them or has deployed them with state aid. When all of these projects are completed, they will reach more than 6,000 households and companies. One can estimate that at the end of 2022, connections will mostly be completed, though it is possible that some tasks may not be completed until 2023.

780. In recent months there has been cooperation between Mila and GR on the one hand and Mila and Tengir on the other, on deployment of fibre-optic networks at a number of locations outside the Capital City Area. With this cooperation, each company acquires its own fibre-optic network, civil works are kept to a minimum which reduces environmental impact and investment costs for the companies, and one could in addition argue that such cooperation speeds up fibre-optic rollout in this country. Such cooperation has taken place between Mila and GR for part of the Capital City Area, in Árborg (Selfoss), Borgarnes, Hvanneyri and Reykjanesbær. It is expected that the collaborative project in Reykjanesbær will be completed in 2022. The completion of deployment in Árborg was expected in the summer of 2020. The arrangement between the companies is that districts are divided between them, and each company deploys a fibre for the other. The representatives of both Mila and GR have expressed their satisfaction with this cooperation and it is not out of the question that it will reach more locations as time goes on, even during the lifetime of this analysis, though the PTA is not aware of such plans at this point in time. Mila and GR have also been negotiating [...]. Mila and Tengir had similar cooperation for the deployment of fibre-optic at Húsavík in the years 2019 and 2020 where the arrangement was however, that Mila implemented most of the development by using its existing duct and conduit system in that town, against payment from Tengir. The Competition authority has granted these companies permission for the above specified cooperation in civil works.

781. As has previously been stated, there are two topologies for these fibre-optic networks. Mila deploys one access network with what is called PON topology where few fibres run from a facility where active equipment can be located. A passive optical splitter distributes the light from that fibre into fibres to up to 128 customers. The optical splitter is located in a manhole quite close to the users. This kind of topology is called Point-to-Multipoint, where one connection point connects to many end users. Mila also has optical threads in its access network where users can be connected with a whole uninterrupted thread to active equipment. GR and Tengir use what is called point-to-point, P2P topology on their fibre-optic lines. The line contains fibres where each fibre is intended for one end user from a facility which houses active equipment. Through the cable system the fibres are separated from the line in such a manner that each user has an uninterrupted fibre. The large number of local networks also use this topology. Mila has used such networks, e.g., with Tengir and in many rural networks, such that GPON equipment and a passive optical splitter are located in the facility for hosting active equipment and the splitter thus uses the local loop from the hosting location to the user.

7.4 Selection of areas for analysis

7.4.1 General

782. When conducting geographic analysis for the wholesale market in question for central local access provided at a fixed location for mass-market products (Market 3b) and selecting areas for assessment, the PTA intends to refer to the above specified BEREC Common Position on geographic aspects of market analysis (geographic definitions of markets and obligations) from 5 June 2014, having taken into account the BEREC Report on the application of the

Common Position in question, from 6 December 2018. It will furthermore take into account the ESA Recommendation on the relevant markets, which are susceptible to *ex ante* regulation, from 11 May 2016 and the ESA Guidelines from 14 July 2004, having also taken into account the recent update from the EU Commission on and assessment of SMP (SMP guidelines) from 26 April 2018 and it is noted that ESA is currently reviewing its own guidelines on the same subject. The PTA will also have in mind the implementation in other European states, as appropriate.

783. For reference, the PTA will have in mind the above-mentioned documents in part or in their entirety, to the extent that they harmonise with conditions on the wholesale markets in question in this country.

784. When selecting the areas in question for assessment, they need to fulfil specific criteria. According to the above specified BEREC Common Position from 2014, they are as follows:

- To be smaller than the country as a whole and to be mutually exclusive with respect to prevailing competitive conditions on these markets.
- It must be possible to map the networks of all network operators and service provided through these networks in the area in question.
- The boundaries of the areas should be clear and stable, such that parties to the market can understand them.
- To be sufficiently small to ensure that competitive conditions would be unlikely to change significantly within these areas and they should be sufficiently large to prevent an excessive burden on electronic communications companies from replying to queries and reacting to requests for data from NRA's and on the NRA's from analysing data received.¹²³

785. The advantages and disadvantages of the applicable methodologies should be analysed when segmenting into areas. The methodology should be chosen as the best fit to the above specified four conditions.

786. Historically, geographic markets have in almost all cases been according to the distribution of the electronic communications network of the former monopolist incumbent. For a long time, the main principle was that there was only one such party who controlled a nationwide fixed line network in each state.¹²⁴ For this reason it had been the conclusion of the vast majority of market analyses in the EEA that the whole country was considered to be one geographic market. This has however been changing in recent months and years in quite a number of states in Europe (particularly on Market 3a, but less frequently on Market 3b), as one can see in the explanations here above in Appendix A-1. In later years, geographic analysis of markets has become more important and at the same time more complex than before, among other things where new network operators have entered the market in competition with the former incumbent monopolist. First and foremost, this is a question of fibre-optic networks and

¹²³ It is often possible to use as an indicator that the area is large enough to be subject to investment decisions of network operators.

¹²⁴ Exceptions to this are, as previously stated, the United Kingdom, Finland and Hungary where more than one such party exists for historic reasons.

cable systems, but the latter has not become established to any significant degree in this country, while the rollout of fibre-optic networks has been rapid in past years.

787. In the BEREC Report in question it was stated among other things that investment in deployment of electronic communications networks (other than copper systems) including an increased number of local networks can lead to a kind of patchwork where next generation systems, e.g., fibre-optic, were almost randomly available here and there in the state in question with only copper networks in other areas. Then there was a number of areas which were exceptional, with respect to the number of networks, number of electronic communications companies operating in the area and the competition environment in other respects. As stated above, the PTA plans to define the service market on Market 3b such that it includes both bitstream connections through a copper network and connections through fibre-optic network.

788. In the above specified BEREC Report from December 2018 on the application of the BEREC Common Position there are among other things, explanations of the conditions that NRAs have used as points of reference when geographic analyses have been conducted and areas selected. It was stated that there was normally a large number of areas identified on the basis of specific conditions which were then categorised into two or more units where competitive conditions were largely comparable within each unit. These criteria used in the early stages of geographic analysis had first and foremost been based on indications on market structure, e.g., distribution of competitor networks, market share and the number of “significant” competitors at retail level in the areas in question, rather than on behaviour of parties to the market, such as with respect to pricing, product offer and product characteristics. The criterion on the number of “significant” competitors at retail level was however rather applied to Market 3b than to Market 3a. More emphasis was placed on market player behaviour later in the process when an assessment is made of whether competitive conditions are sufficiently heterogeneous between the selected areas to justify segmented geographic markets and/or varying geographic obligations by area.

789. In the report it is also stated, in discussion on selection of appropriate areas, that a large majority of NRAs had used administrative units, e.g., municipalities or postcodes, rather than the network topology of the former incumbent monopolist and as appropriate of their competitors as well. The reasons why administrative units were chosen were among other things, that they were considered to be clearly delineated and stable and that such units were generally small enough to ensure adequate homogeneity within each area and were sufficiently large for it to be possible to analyse competitive conditions in an effective manner without imposing an excessive burden on market players from replying to requests for data from an NRA or imposing an excessive burden on such institutions in their geographic analysis of the relevant market. Excessive analysis could be extremely time-consuming and not justifiable unless there was major uncertainty about the result. The number of areas analysed by European NRAs varied greatly, and to a certain extent depended on the size of the state in question. This was normally from several hundred to several thousand areas on which the NRAs had gathered information and analysed.

790. It was also stated that after having analysed the geographic areas, the next step was normally to group those areas with similar competitive conditions. The areas were then generally grouped into areas where there was significant or some competition on the one hand and on the other hand, areas where there was less or even no competition. Varying criteria could be used for such grouping. On Market 3b the most common criteria used were that a specific number of competitors of the potential SMP operator had begun to deploy their own infrastructure above a specific level (at least the networks of two parties in addition to the

network of the potential SMP operator)¹²⁵ and that the market share of the potential SMP operator had fallen below a specific level and the number of significant competitors. In the states, the distribution criterion had generally been from 50-75%, the criterion for market share of the SMP operator variously, 40% or 50% and significant competitors needed to reach a specific number, and each one of them had to have 10-15% market share.

791. In the above specified BEREC Common Position from 2014¹²⁶ it was among other things stated that the main elements of geographic analysis are delineation of appropriate geographic areas and assessment of competitive conditions. NRAs were generally faced with two scenarios in such a task.

- **Scenario 1:** Access that is based on wholesale obligations (local loop lease, bitstream access, resale) is an important source of competition on the retail market, as appropriate with the addition of the existence of electronic communications networks operated by competitors of the incumbent SMP operator in specific areas (e.g., FTTH/FTTB network, cable system, mobile network or Wi-Fi system). These networks then needed to be capable of providing comparable service to the traditional copper network.
- **Scenario 2:** The above specified access obligations were not an important source of competition on the retail market, but rather first and foremost the existence of electronic communications networks operated by competitors of the incumbent, SMP operator (first and foremost where coverage of competitors infrastructures was substantial).

792. This differentiation belongs, however, rather to the definition of service markets than to geographic analysis. It could nevertheless have an impact on the selection of relevant units for the geographic analysis. What characterises both scenarios were that only the potential SMP operator had the possibility of providing reliable, regulated wholesale access across the whole country. This fact on its own, should not however exclude the possibility that there could be varying competitive conditions by geographic area, even at wholesale level. The more important wholesale access was for competition, the more important were telephone exchanges or main distribution frames (MDF) of the potential SMP operator in the geographic analysis. When local loop lease had been the main source of competition at retail level, upgrading of copper networks (for example with vectoring) could create challenges to the sustainability of the competition that had been identified, as the possible phasing out of telephone exchanges

¹²⁵ The PTA has not found any precedent on Market 3a for it being sufficient for only one network of a competitor to the potential SMP operator to be in situ. On page 29 in the BEREC Common Position from 2014 it states among other things: “NRAs dealing with markets covered by Situation 2 (retail conditions mainly driven by inter-platform competition) have also considered this last criterion (the number of LLU operators present in a local exchange or the coverage of alternative infrastructures in that area, or a combination of both) as well as other criteria (such as the number of providers or the SMP operator’s market share in the geographic area), defining competitive markets (or competitive areas) where the market share of the incumbent operator at the retail level was below a certain threshold (e.g. 40-50%), and at least a certain number of competing infrastructures (generally more than two, and its ability to supply fit-for-purpose wholesale elements) existed. In addition, although in a more qualitative manner, considerations on barriers to entry, in terms of population density, and pricing strategies have also been addressed.” It then states on page 33 (paragraph 152) in the same document: “A market characterised by only two players (e.g., the incumbent and a cable operator) may thus be deemed to be not sufficiently competitive to justify the withdrawal of obligations. As noted above, BEREC has already expressed its agreement with the economic theory on the risks of collusion derived from such market structure.” (PTA emphases edit)

¹²⁶ See pages 20 and 21 in the above specified BEREC Common Position.

could significantly limit the possibilities of local loop lease. In a geographic analysis that should take a forward-looking approach, it was essential to keep this aspect in mind.

793. Finally, it was stated in the report that most NRAs had included expected future development in the equation when elaborating geographic measures. Both expected development of market share and expected development of deployment of next generation networks, including fibre-optic networks were taken into account.

794. Taking the above into account, one must therefore find sensible and usable criteria for the selection of geographic areas that will be examined, before it becomes possible to assess whether the areas are segmentable with respect to potentially significant variations in competitive conditions between them.

795. As previously stated, when grouping areas, it is not necessary that competitive conditions are precisely the same between the areas. One should group areas where sufficiently comparable competitive conditions exist, and segment areas where there are significant differences in competitive conditions. Grouping of this nature and segmentation can then possibly have an impact on either the designation of a party with SMP or on identified competition problems and the elaboration of obligations. There are examples in Europe where the fact that an area has been segmented into more than one group for more detailed analysis has had no effect on designation of a party with SMP and/or on the elaboration of obligations.¹²⁷

796. In the case of a large number of small areas, it is likely that there are various parallels or continuity with respect to competitive conditions between these areas, or at least part of them. In such instances it can be difficult to draw a clear line between areas where more or less competition exists. One method was to assess competitive conditions in each of such areas separately and subsequently group the areas. This would however result in huge pressure of work on the NRAs in addition to the fact that it could be a somewhat random process. A more useful and more appropriate method would be to define clear criteria on how the areas are to be grouped. It would then be proper to have in mind the purpose of market analyses which are not in themselves a goal, but rather a device to analyse competitive conditions for the purpose of deciding whether and then on what party, obligations should be imposed to resolve competition problems for the benefit of consumers.

797. In order to better ensure that areas where sufficiently comparable competitive conditions exist are grouped together and separated from areas where significantly varying competitive conditions exist, it is appropriate to base differentiation between areas on more than one criterion. The criteria that are most appropriate for use in each instance are decided by the relevant NRA, having taken into account competitive conditions in the state in question. All selected criteria must be fulfilled such that the difference in competitive conditions between selected areas is significant, but rather small within an area.

798. A related question is whether the nature of competitors to the potential SMP operator should be a significant factor in the grouping of areas. If, for example, a potential SMP operator who operates first and foremost on xDSL systems, competes with a fibre-optic network operator in area A and with another in area B, the question is whether it is possible to group the areas in question together. In the opinion of BEREC it was the homogeneity of competitive

¹²⁷ See for example discussion on the UK case from 2019 regarding the market for physical infrastructure and the Germany case regarding Market 3a from 2019, in Appendix A-1.

conditions that should be the deciding factor, and not that these were two separate competitors in different areas. This meant that if analysis of competitive conditions indicated that they were sufficiently comparable, then areas A and B should be grouped together. If the competitors in question behaved, on the other hand differently, this should come to light in the analysis and should result in the areas in question forming each their own geographic market, as competitive conditions were not sufficiently homogeneous.¹²⁸

799. The definition of geographic markets is dependent on issues that can vary over time, e.g., with respect to the number of competitors in individual areas, market share and nature of demand. For this reason, the conclusion on grouping areas can change in time with a later analysis. Broadly speaking, this is not dissimilar from analysis of service markets, which can change between analyses. One of the tasks of NRAs when defining service markets and geographic markets, is to endeavour to predict future development. In the case of geographic analysis of markets, this can involve collecting information on deployment plans of the potential SMP operator and of his main competitors and endeavouring to predict development of market share based on available data or observable market conditions.

800. When forward-looking market analysis has been conducted, it is normal on the basis of legal certainty and predictability considerations, to make no alterations to the analysis until the next review, even though the development has proven somewhat different from the prediction. In the case of significant discrepancy, it is likely that a new market analysis needs to be conducted earlier than planned.

801. The greater the difference between network topology and distribution of the electronic communications network of the potential SMP operator and the network or networks of his competitors, the more complex a task the geographic analysis and selection of areas becomes for the NRA. Previously in this country, when a former monopolist operated a copper network without competition, it was considered normal to base possible geographic areas on the telephone exchange area of this party, which was generally the whole country. By far the most common scenario was that the geographic market was the whole country. In such a scenario, varying levels of competition between areas were first and foremost decided by the existence of operators that used wholesale access to the systems of the former monopolist.

802. If on the other hand, a competitor or competitors of the potential SMP operator had deployed their own electronic communications network which had achieved significant distribution, it becomes more complex to decide which geographic units are most appropriate, as the relationship between competitive conditions and the telephone exchange areas of the potential SMP operator become less clear. In such instances, it can be more appropriate to use administrative units such as municipalities or postcodes, as the deciding factor, as network topology or distribution of the electrical communications networks of the potential SMP operator are no longer the most important criterion. Decisions on distribution of networks operated by competitors of the potential SMP operator are assessed from a totally different perspective than the telephone exchanges of the potential SMP party.

803. One can furthermore say that the advice in the ESA Guidelines on market analysis and assessment of SMP from 2004, with respect to geographic definition, to the effect that the appropriate geographic area for a market depends generally on the distribution of the electronic communications network of the former monopolist and/or the jurisdiction of the Telecommunications Act, which is the whole country, could in many instances have become

¹²⁸ See, e.g., paragraph 132, page 30 in the above specified BEREC Common Position from 2014.

obsolete for the purpose of analysing varying competitive conditions by area. Such criteria could lead to excessively large-scale geographic units. It could also be more appropriate to use administrative units, particularly if the NRA can demonstrate that competitive conditions within such an area or set of such areas are sufficiently homogeneous and sufficiently different from competitive conditions in other areas or set of areas. As stated in the discussion of cases involving PTA's sister institutions in Europe in Appendix A-1, it has become more and more common in recent months and years to use administrative units, not least municipalities. The underlying reason is often that the main cause of varying competitive conditions is rather the existence of electronic communications networks of competitors of the potential SMP operator, than wholesale access to the network of the latter party. The method of using the distribution of electronic communications networks operated by the potential SMP operator (telephone exchange areas), if appropriate after taking into consideration the distribution of competitor networks, seems therefore to be rapidly on the wane.

804. Just as with geographic units based on the telephone exchange areas of the potential SMP operator, there can also be disadvantages with geographic units that are based on administrative boundaries. The size of municipalities can for example vary greatly, as can the number of inhabitants and the distribution of inhabitants within the municipalities. Without additional criteria, it can be difficult to ensure homogeneity within larger municipalities, as the distribution of competitors to the potential SMP operator can vary greatly within the municipalities.

805. With the above in mind, the selection of the most appropriate geographic areas is decided by a complex interaction of factors that relate to characteristics and topology of electronic communications networks and other characteristics of the market being processed in each instance.

7.4.2 Conclusion on selection of areas for analysis

806. In the opinion of the PTA, municipalities are appropriate units to use in geographic analysis, given conditions here in this country today. One can among other things, refer to discussion in Section 7.3 here above on the distribution of electronic communications networks, planned distribution and network topology.

807. The distribution of Mila bitstream systems over copper and fibre-optic networks is close to nationwide and the company operates in almost all municipalities on the relevant market. From former times, the company system is divided into telephone exchange areas which were mostly based on urban kernels and service with their neighbouring rural areas. The vast majority of Mila bitstream connections are on the company's own copper and fibre-optic networks, but the company also leases access to fibre-optic networks owned by other parties such as Tengir and the various countryside networks, and there it operates its own bitstream service.

808. Other networks have not been developed in line with the Mila telephone exchanges. GR has first and foremost developed its network in line with the operating area of Orkuveita Reykjavíkur, which is owned by the municipalities of City of Reykjavík, Akranes and Borgarnes. In recent years, GR has extended its network to more locations in the Southwest corner of the country. Tengir has developed its network in Eyjafjörður and widely in North Iceland, also on the basis of municipalities. The local networks that have received funding from Iceland Optical Connected are developed within the municipalities although they generally do

not achieve total coverage of a whole municipality. A number of municipalities have also funded networks for their inhabitants, with or without the participation of inhabitants, without public funding. It also seems that boundaries based on distribution and network topology of the potential SMP operator are very much on the wane in Europe. Mila has extended its fibre-optic network widely, both in the Capital City Area, widely in Southwest Iceland and in other regions at various locations in the country. Given Mila's vigorous distribution plans for the coming years, it is clear that the Mila fibre-optic network will significantly increase density at a national level throughout the lifetime of the analysis.

809. The PTA also examined whether postcodes could also be suitable for geographic analysis. The PTA does not agree with the Siminn Group that postcodes are more suitable criteria than municipality boundaries when assessing homogeneity or differing competitive conditions by area in this country. Among other things, the very numerous local fibre-optic networks that have received state aid through the project, Iceland Optical Connected, have been developed within the municipalities in question, though they do not entirely cover each municipality as a whole, up to this point in time. A number of municipalities have, furthermore, also funded networks for their inhabitants, with or without the participation of inhabitants, without public funding. In addition to this, some postcodes, cover very extensive areas while others cover very small areas. There is also the fact that some postcodes in the countryside cover more than one municipality while in other municipalities there are many postcodes. According to the Act on Postal Service number 98/2019, the sole purpose of postcodes is for geographic demarcation, in order to locate the recipient and thus facilitate distribution of post. The purpose of postcodes is therefore only to support efficient distribution of post. It is not required that postcodes and their geographic coverage follow the boundaries of individual regions, municipalities or counties. Many smaller municipalities do not have their own postcode, but rather share a post number with another or other municipalities. There are 170 postcodes in the country (after deducting post box numbers), while municipalities are 69. The population of Iceland is about 370,000. The average number of inhabitants by municipality is about 5,400 against 2,200 if one used postcodes.

810. The Local Authorities Act no. 138/2011 deals with municipalities. In Article 1 it states that the country is divided into municipalities which are responsible for governing their own affairs. The administration of municipalities is managed by the local authorities who are democratically elected. Each person shall be deemed a resident in the municipality in which they are legally domiciled. Municipalities are legal entities. In Article 3 it is stated that the Act forms a general foundation for the operation and public administration of the municipalities. It is stated in Article 4 that municipalities have certain boundaries that are dependent on the outer limits of the sites of their real estate, including public lands, that lie within them. Municipality boundaries may not be altered except by law. Despite this, the minister can change municipal boundaries in connection with merging. When two or more municipalities become a new municipality, it will have the same outer geographic demarcation as the merged municipalities had vis-à-vis other municipalities.

811. Even though the merging of municipalities can become a reality in some cases during the lifetime of the analysis, it is the assessment of the PTA that such changes will not result in unstable borders because in such merging geographic areas does not move from one defined area into another area, but rather the areas are merged and the boundaries of the merged municipality remain unchanged vis-à-vis other municipalities. It is also generally very sparsely populated municipalities in the countryside that could merge. After the merging of four

municipalities in East Iceland was completed in the spring of 2020, municipalities then totalled 69¹²⁹. It is much more common in Europe, to use municipality boundaries than postcodes.

812. In the BEREC Common Position on geographic analysis from 2014 one criterion that must be taken into account when choosing areas for geographic analysis is that the boundaries of the areas should be clear and stable, such that parties to the market can easily understand them. The PTA considers that both parties to the market, consumers and other stakeholders find it easier to understand boundaries of municipalities than the large number of postcodes, which in the opinion of the PTA are not very transparent and are numerous for a country with as small a population as Iceland. It is therefore the assessment of the PTA that there is greater transparency in applying municipality boundaries than postcodes in connection with this market analysis, and in addition to this it is more appropriate on the basis of prevalent competitive conditions on the relevant market. The PTA thus considers that investment decisions of electronic communications infrastructure companies are made rather on the basis of municipal boundaries than postcodes, as they often come to an agreement with the relevant municipalities on fibre-optic rollout in the relevant municipality, with or without state aid from the Telecommunications Fund. This is precisely one of the issues that is considered to be of importance in the above specified BEREC Common Position.

813. Furthermore, the above discussion in Section 7.4.1 here above, where among other things, reference is made to the BEREC reports, supports these PTA intentions.

814. Having taken all of the above into account, the PTA plans to use municipality boundaries when selecting areas for geographic analysis.

815. As stated above, it was stated in the said BEREC documents that generally there needs to be more than one network competitor of the SMP operator for it to be possible to consider that effective competition, or at least significant competition, can exist on the relevant market. In Iceland it is generally the case that there is only one network competing with Mila in each area and it is assumed that this situation will not change during the lifetime of this analysis. Large and rather sparsely populated areas enjoy however, no such competition. This competition does not derive from Mila competitors on the market in question building their bitstream service on local loop lease from Mila, but this competition is rather provided through local loops operated by other parties. As Mila uses vectoring in its VDSL system, it is impossible for Mila's competitors to build their own VDSL system on Mila copper local loops and access to fibre-optic in the Mila access network is based on PON topology and therefore not technically impossible, at least the way things are now.

816. In order to divide areas into units with little or no competition on the one hand and units with more competition on the other hand, it is normal in the opinion of the PTA in the light of conditions in this country to subject such division to rather strict criteria. As has been previously stated, there are very few examples from Europe where the existence of only two networks, including the network of the former monopolist, has justified geographic measures on the relevant market. This has however been done in Portugal, but in that country, there is a very effective obligation for access to ducts and cable routes owned by the former monopolist incumbent, and the most common scenario there is that his competitors base their deployment on such access.

¹²⁹ The municipalities Fljótsdalshérað, Djúpavogshreppur, Borgarfjarðarhreppur and Seyðisfjarðarkaupstaður became the municipality Múlaþing.

817. With the above in mind, the PTA plans to decide areas with more competition on the market in question with circumstances where fibre-optic network is already in place which competes with Mila in the area in question and which has achieved at least 75% distribution and that the Siminn market share is below 40% on the retail market for broadband service. The conditions are thus:

- That there is a fibre-optic network that competes with Mila in the relevant area, which has distribution to at least 75% of households and companies.
- That the Siminn market share on the retail market for broadband service is under 50%.

818. In table 6.1 In Section 6.4.2 here above, one can see the status in the country's 69 municipalities with respect to deployment of fibre-optic networks other than that of Mila on the one hand and on the other hand, with respect to the Siminn share in retail. Reference is made to this.

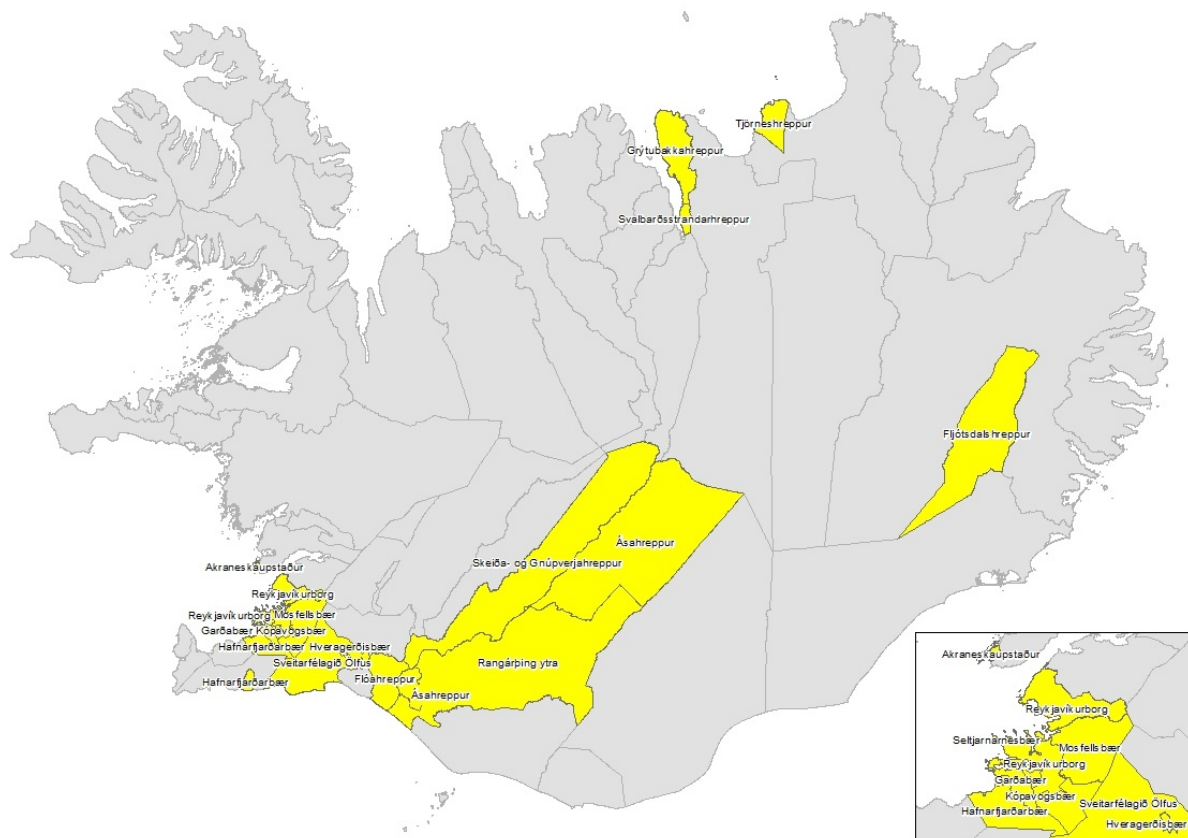
819. The PTA has analysed the data in question and seen that the above specified two conditions are fulfilled simultaneously in 17 of the municipalities specified below at the end of 2020¹³⁰. The PTA will then annually update the list accompanying the decision, in the first instance early in 2022, with the status as of end of year 2021:

- The City of Reykjavík
- Kópavogsbær
- Seltjarnarnesbær
- Garðabær
- Hafnarfjarðarkaupstaður
- Mosfellsbær
- Akraneskaupstaður
- Svalbarðsstrandarhreppur

¹³⁰ In the preliminary draft, there were only 7 municipalities that fulfilled the conditions that the PTA plans to apply for a municipality to be considered to belong to the area where lighter obligations should apply on the relevant market, i.e., City of Reykjavík, Seltjarnarnesbær, Svalbarðsstrandarhreppur, Grýtubakkahreppur, Tjörneshreppur, Skútustaðahreppur and Sveitarfélagið Ölfus. The criteria were also two on Market 3b, i.e., 75% distribution of a fibre-optic network other than that of Mila and that the Siminn share was below 40%. As is stated in Section 6 in Appendix C, which discusses the additional consultation opened by the PTA on 30 October 2020, the PTA decided after having reviewed comments on the first draft, to reduce the conditions to two, i.e., 75% distribution and that the Mila# market share was under 50% instead of 40%. In the additional consultation document, it was the PTA conclusion that 15 municipalities fulfilled the above specified two conditions. After having received updated data at the end of 2020, it came to light that 3 more municipalities fulfilled the conditions, i.e., Fljótshlíahreppur, Skeiða- and Gnúpverjahreppur and Rangárbíng Ytra, and that Skútustaðahreppur which was on the initial list, did not. There are, therefore, now 17 municipalities that fulfil the conditions to belong to areas where there is more competition and where lighter obligations will therefore apply. With respect to further arguments, reference is made to Section 6 in Appendix B and to the same section in Appendix C.

- Grýtubakkahreppur
- Tjörneshreppur
- Hveragerðisbær
- Sveitarfélagið Ölfus
- Flóahreppur
- Ásahreppur
- Fljótsdalshreppur
- Rangárþing Ytra
- Skeiða- og Gnúpverjahreppur

Figure 7.6 Municipalities where both the distribution of networks other than those of Mila exceed 75% and that the Siminn retail share is below 50% at the end of 2020



Source: Post and Telecom Administration.

7.5 The position on the retail market, with respect to geographic analysis

7.5.1 General

820. As previously stated, the starting point for market analysis, including geographic analysis, is generally to examine competitive conditions on related retail markets, given that they are informative for analysis on the relevant wholesale market. It is also necessary to keep in mind how competitive conditions would be on the relevant retail market without wholesale obligations (modified greenfield approach).

821. In Sections 6.1-6.4 in the above specified BEREC Common Position from 2014 there is among other things discussion on the importance of competitive conditions on related retail market or markets, when conducting geographic analysis of markets. Then it is emphasised that the main purpose of obligations subsequent to market analysis of electronic communications markets is to remove or minimise the damage that consumers may suffer as a result of lack of effective competition.

822. As is stated in the above specified ESA Recommendation on relevant markets that can be susceptible to *ex ante* regulation, analysis of the relevant wholesale markets should commence with the definition of the relevant service market. The next step is to decide the composition of the geographic market, before an assessment is made of the competitive pressure that may exist on the market in question or markets, both on the demand and supply sides. Products on Markets 3a and 3b are procurements for broadband service and they must therefore be analysed together.

823. Competition problems on the retail markets in question are generally caused by inadequate competition in infrastructure and/or lack of effective wholesale access. As the wholesale markets in question are related in the same value chain, there is an obligation to react to current or potential competition problems on the retail market in question, on that wholesale market, that is lowest in the value chain, i.e., on Market 3a. It may be the obligations on that market do not suffice on their own to resolve the competition problem on the retail market in question, and then measures must also be taken on the wholesale market that is higher in the value chain, i.e., Market 3b. It was not until it is finally clear that obligations on the relevant wholesale markets do not suffice that the option is considered of reacting to the competition problems identified, with obligations at retail level.

824. The above means that if no competition problems are identified on the retail market in question, then it is not an option to apply obligations on the above specified wholesale markets. That is to say that if the conclusion of analysis of the retail market in question indicates that effective competition on the retail market is not dependent on whether wholesale obligations are in force on the above specified wholesale markets (modified greenfield approach).

825. BEREC has in many of its documents during recent years, described in detail the relationship between retail and wholesale markets and how competitive pressure on retail markets shall be reflected in assessment of wholesale markets.¹³¹ BEREC has repeatedly stated

¹³¹ See e.g., BEREC Report on self-supply, BoR (10) 09, from March 2010 and BEREC Report on case ES/2008/0805 and CZ/2012/1322. In the former report, it says, among other things on page 12: “... *the competitive pressure exerted by alternative infrastructures such as cable, fibre, mobile connections or other technologies will*

that it would be normal to take internal sales into account when defining a service market in wholesale or when assessing SMP, if the indirect competitive pressure (without obligations) is sufficient to have a real impact on competitive conditions on the relevant wholesale market. For example, the NRA conclusion that a cable system had significant competitive weighting on the retail market should lead to the NRA in question to examining, when defining the relevant wholesale market or when assessing SMP, the question of what pressure the cable operator or operators exerted on the potential SMP operator. The wholesale market, where there was significant competition, could also be one of the explanations as to why there was competition on an underlying retail market. Furthermore, the NRA, even in the case of a “hypothetical” wholesale market, which was characterised by internal sales, could have sufficient indications to conclude that effective competition existed on a related retail market, particularly if strong and sustainable competing infrastructures existed on the relevant wholesale market.

826. BEREC furthermore considers there to be a need to analyse the underlying retail market in detail in such a manner that it is possible to assess the need for obligations on the wholesale markets in question and assess the importance of internal sales on those markets.¹³² It is therefore a normal first step in analysing Market 3a and Market 3b, to analyse the underlying retail market, or retail markets. Analysis of competitive conditions, assessment of strength of indirect competitive pressure and a decision on whether internal sales should be included is a complex task, which must be implemented on a case-by-case basis.

827. As stated in the above specified BEREC Common Position from 2014, it is much more common that geographic measures are applied on Market 3b rather than on Market 3a. There it is stated among other things, that NRAs have generally decided that the geographic market is the whole country, despite having identified some difference in competitive conditions on a related retail market.¹³³ The reason for this, from the point of view of Market 3b, is that LLU operators can, in specific areas, generate competitive pressure which can have a significant impact on assessment of the competition level. Such parties do not influence Market 3a, but only real network operators. The same can be said for indirect competitive pressure, where it exists. Such pressure has a greater impact higher in the value chain, i.e., on Market 3b.¹³⁴ LLU can be an indicator for certain intra-platform competition on the retail market, and in addition such a structure can diminish access barriers to Market 3b. It is also common that the number of electronic communications companies operating on Market 3b is greater than on Market 3a, as in that instance there can be parties operating at wholesale level that can take advantage of electronic communications networks of network operators, but not of their own electronic communications network.

828. Despite the above, it would not be possible to exclude the possibility that intra-platform competition on Market 3a was sufficient, depending on circumstances in specific areas, in order to ensure effective competition on the underlying retail markets, despite wholesale obligations having been lifted or not having been in place. Then the NRA could decide to segment

normally have been addressed by the NRA in the context of a retail market assessment and will thus be determinative of the products that need to be considered when dealing with indirect constraints.”

¹³² See paragraph 74 on page 19 in the BEREC Common Position from 2014.

¹³³ See page 19. From the time that the document in question was published in 2014, it has become increasingly common that NRAs segment geographic markets and/or impose varying obligations on Markets 3a and 3b, particularly on Market 3b.

¹³⁴ Indirect competitive pressure can for example result from cable systems, mobile networks, fixed wireless access networks, etc. Such access can for example belong to the underlying retail market, and even to Market 3b, without belonging to Market 3a.

geographic markets or apply varying obligations by area and thus even de-regulate part of the market. Such could however lead to access to networks not being on offer in specific areas, which could possibly reduce the number of competitors and increase the importance of those that remain. The NRAs should thus in the opinion of BEREC, consider the impact of the above on competition on the underlying retail markets.

7.5.2 Conclusion on the position on retail markets with respect to geographic analysis

829. In Section 3 here above there is detailed discussion on competitive conditions for fixed access and broadband service in retail. In Section 3.2.6 one can see the PTA conclusions on competition on the retail market in question. There it is stated that the retail market in question, comprised only copper connections (both ADSL and VDSL), cable connections and fibre-optic connections which gave service providers the option of providing consumers with Internet and related services, which was delivered over bitstream, that is to say distribution of TV service over IPTV and IP voice telephony (VoIP). Taking account of service offer and of other circumstances in this country and on practices elsewhere in the EEA, it was the PTA conclusion that in this country a chain of substitution existed that supported the above specified substitute. In addition to this, homogeneity in pricing and service-offer on varying Internet connections strongly indicated that they belonged to the same market. In the opinion of the PTA, the consumer survey that the PTA commissioned in the autumn of 2020, confirms the above specified substitutability assessment.

830. It was stated that connections for households and companies had, in many instances, the same characteristics in this country, among other things because of the small size of Icelandic companies and because of powerful household connections, and these connections could in many instances belong to the same retail market. Some companies have on the other hand a need for special connections with more bandwidth and/or a higher service level. Such connections belonged to a separate retail market for high-quality connections which related to a separate wholesale market that enable such connections (Market 4/2016). This wholesale market will be analysed later in the year 2021.

831. It was furthermore the PTA conclusion that it was perfectly clear that effective competition did not exist on the retail market in question, despite the obligations resting on Mila, pursuant to the PTA Decision no. 21/2014 on wholesale markets for local loops and bitstream access. Furthermore, that the position on the retail markets would doubtless be worse if it were not for the wholesale obligations in question. For this reason, the PTA had considered it important to analyse the situation on the wholesale markets for local access provided at a fixed location (Market 3a) and for central access provided at a fixed location for mass-market products (Market 3b), as they are closely related to the above specified wholesale markets for local loops and bitstream access.

832. It was also stated that market analyses in the EEA had generally shown that on retail markets for standard broadband connections and high-quality connections, there would be a lack of competition if obligations on the underlying wholesale markets (one or both) were not in place, particularly in states where there is only one network with national coverage. In this country, it was only the Mila network that had close to national coverage, and it was therefore likely that the situation on the relevant retail markets here would be similar to what is generally the case within the EEA, if obligations at wholesale level were not in place.

833. Mila bitstream access (ADSL, VDSL og GPON) reached 149,000 spaces (homes and companies) at end of year 2020, which makes 92% of total spaces in the country. At the same time, the company's fibre-optic network reached at least 77,000 spaces, which represents at least 47.2% of the 163,209 spaces in this country, and its development did not commence to any significant degree until 2016. The Mila copper network reached however 140,496 spaces at the end of 2020 which is 86.1% of total spaces. Access to the Mila bitstream service at the end of 2020 was such that more than 140,000 spaces had access to ADSL or VDSL, and more than 89,000 spaces had access to the company's GPON service. Development of bitstream service over fibre-optic networks, has thus been very rapid with Mila. It is difficult to predict Mila fibre-optic distribution throughout 2023, as the company only provided Mila with information in autumn 2020 on the total investments in the coming years, but not the estimated number of spaces. Despite repeated queries from the PTS from January until March 2021, Mila did not provide the PTA with information on estimated number of deployed fibre-optic spaces in 2021, and certainly not for longer into the future. Information was finally received from Mila on 15 June 2021, or after the draft market analysis was sent to ESA for informal consultation. The company plans to increase its FTTH connections by around [...] a year in 2021-2023, or a total of [...] connections. Various reservations were made in the forecast. Given the information that the PTA has at its disposal and the amounts that Mila intends to allocate annually to fibre-optic deployment, and on the basis of the number of deployed fibre-optic spaces since 2016, the PTA considers it to be not out of the question to estimate that the company's deployed fibre-optic spaces will increase by at least [...] a year to the end of 2023 and will then total at least [...] which represents at least [...]% Mila distribution at a national level at end of year 2023, if one allows for the total number of spaces in the country, increasing by about 3,000 per annum and will then be about 172,000. Part of the difference between the PTA forecast and Mila is that Mila only assumes an increase in capacity of 2,000 per year, but the PTA considers this to be too small. This forecast could however be underestimation, as the Siminn Group announced on 31 August 2021, in its presentation on an investor presentation, that in May 2021, the number of fibre-optics of Mila reached 100,000 homes and companies in May 2021. The PTA also takes into account that at the beginning of 2021, specific assets were transferred from Siminn to Mila (among other things the mobile phone system (RAN) and the IP-MPLS system), which in the opinion of the PTA could create more latitude for Mila for more rapid fibre-optic deployment than before.

834. At the end of 2020, the GR fibre-optic network reached something over 109,000 spaces, which represents about 67% of homes and companies in the country, and these connections were all in the Southwest part of the country. According to information from GR from autumn 2020, the company expects that the network will reach about [...] spaces at end of 2023. Should this happen, the fibre-optic deployment that the company has conducted in recent years will decelerate significantly. If one assumes that spaces will increase by about 3000 per annum, among other things because of new builds, it is clear that spaces will be 172,000 at the end of 2023. According to this, the GR network will reach about [...] % homes of the country's households and companies at the end of 2023.

835. At the end of 2020, the Tengir fibre-optic network reached about 9,500 spaces, which is about 6% of the country's households and companies, but only in the North part of the country. Tengir projects an increase of up to [...] connections per annum up to the end of 2023, and they should then be about [...] and thus reach about [...] % of spaces in the country.

836. The Snerpa fibre-optic network in the West Fjords reached 1,173 spaces at the end of 2020, which is well within 1% of spaces at a national level. Tengir intends to increase local

loops by about [...] per annum until the end of 2013. It will then reach about [...] spaces which makes approximately [...] % distribution at national level. The fibre-optic network of Austurljós at Egilsstaðir in East Iceland reached 200-300 spaces at end of 2020. The company's distribution plans are on the other hand, subject to considerable uncertainty, particularly as Mila has also deployed a fibre-optic network in that town and has announced plans for major fibre-optic rollout in the municipality in 2021. It is clear that the fibre-optic networks of Snerpa and Austurljós are very small and do not have an impact on the competitive position on the relevant wholesale markets in this country, to any significant extent.

837. In total, the fibre-optic networks of GR, Tengir, Snerpa and Austurljós reached just over 120,000 spaces at the end of 2020, which represents 74% distribution at national level, and it is expected that they will be about [...] at end of 2023, which represents [...] % distribution, given that the number of spaces in the country will then be about 172,000. As stated above, the PTA estimates that the number of Mila deployed fibre-optic spaces at end of 2023 could total at least [...], which represents at least [...] % distribution at national level. For this reason, the PTA believes that there will be a significant levelling of the number of fibre-optic connections of Mila on the one hand and the four other electronic communications infrastructure companies on the other hand during the lifetime of the analysis. The companies in question, GR, Tengir, Snerpa and Austurljós all offer bitstream service on the networks, but as has previously been stated, their shares, apart from that GR, are small in such bitstream service. Vodafone offers bitstream service in a number of local networks to meet the needs of its own retail, but as has previously been stated, this is an insignificant amount.

838. One can therefore expect GR and Tengir connections in use to increase somewhat during the lifetime of the analysis, although it is likely that this will be insignificant in terms of percentage points. The Mila market share of the wholesale markets in question was however very large during the same period, standing at 57% at a national level on Market 3a and 57% on Market 3b at the end of 2020. During the lifetime of the analysis, it is assumed that the Mila market share will decrease substantially on the wholesale markets in question and will remain over 50% at the end of the lifetime of the analysis on both wholesale markets.

839. It was stated in the above specified Section 3.2.6, that the strong position of the Siminn Group on the retail market, where the company's market share had remained relatively stable in recent years and was 46% at the end of 2020, and on the above specified wholesale markets, strongly indicates that if it were not for wholesale obligations the Group could operate without taking into consideration competition and consumers, and could maintain access barriers to infrastructure, systems and service. The Siminn market share of the retail market had in reality only decreased by a very few percentage points since the last PTA analysis of the wholesale markets in question in the year 2014. A company's market share is an important factor in market analysis. It is however not the only factor that decides whether a company is designated as having SMP, but it can give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to accepted case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the guidelines, a suspicion that single dominance exists with one company does normally not arise until market share has reached at least 40%. This depends, however, on the size of the company in comparison with its competitors. In some instances, a company with market share of less than 40% can be deemed to have SMP. Despite the powerful entrance of Nova to the market in question in recent times and the merger of Vodafone and 365 in 2017, the Siminn market share had not significantly

decreased in recent months and years. At the same time the company's main competitor, Vodafone, had lost significant market share.

840. It was finally stated in the section in question that the Siminn Group's offer of the Heimilispakkinn bundle, which commenced in October 2015, which was at least a triple play and even a quad play, with components that related to mobile phone service where the emphasis was to encourage customers of the company's content provider, Sjóntvarp Símans Premium, to conduct business with its own electronic communications company (Mila and Siminn) - seemed to be one of the reasons for this Siminn success. The success of the Sjóntvarp Símans Premium content provider, which is part of the bundle in question, seems to have played a very significant role in this matter. It doubtless strengthened the Siminn position that the company acquired broadcasting rights to English football from and including summer 2019 for three years. In the spring of 2021 Siminn acquired these rights until the summer of 2025. These rights had for many years been in the hands of the main competitor, Vodafone, and before that in the hands of 365 miðlar which merged with Vodafone in 2017. Siminn breaches of Paragraph 5 of Article 45 of the Media Act had furthermore been revealed, breaches that seemed to have improved the Siminn position on the retail market in question from the time that the breaches commenced in October 2015 at least until August 2018 when the company introduced an OTT solution in its TV distribution and an IPTV solution. Even without the success of this bundle one must consider that vertical integration and the position of the Group are such that it would have significant power, incentive and opportunity to apply access barriers if it were not for the obligations which then rested on Mila on the relevant wholesale markets.

841. In Section 3.1.4.1 here above, where there is discussion on demand on the retail market in question with respect to consumers, it was stated among other things that differentiation on the basis of technical characteristics of Internet access, such as capacity and service quality, was little if any. One could say that a normal Internet connection carried the traffic that consumers wanted, with quality but sufficed for their needs. This could be seen in the way that service providers presented their products on the retail market in question.

842. In Section 3.1.4.4 here above, where there was general discussion on demand on the retail market in question, it was stated among other things that it was clear that increased access to various kinds of TV content had now become the main driver of consumer demand on the retail market in question. In addition to the IPTV systems of Siminn and Vodafone, various OTT operators provided service through the public Internet access of their customers, to carry data to consumers.

843. In Section 3.1.4.5 here above, where there was discussion on the share of companies in bundles, it was stated that such bundles, particularly those that included TV service with electronic communications service, were becoming more popular with consumers and that Siminn thus had a substantial lead on its competitors with its Heimilispakkinn bundle. The PTA considered there to be no need to decide in this market analysis whether the market for bundles had become a separate market at retail level, as it was clear that the underlying wholesale products were the same regardless of whether Internet service, TV service over IP communications protocol (IPTV) and IP VoIP were sold as separate retail products or sold together in a bundle. Reference was furthermore made to the Competition Authority Decision no. 42/2017 (merger of Fjarskipti hf. and 365 miðlar) where that Authority considered it important to take bundles particularly into account when assessing the impact of the merger in question. It was stated that this applied particularly to assessment of capability and possibilities of merging parties to leverage their strong position on one market (e.g., subscription TV) to improve their position on another market (e.g., Internet service). In the opinion of the PTA, it

is clear that these concerns are no less applicable, or even more applicable, to the Siminn Group as the Group is now a strong player on the TV market, and in addition to that it is the largest and most powerful party on the retail market here under discussion.

844. The above specified discussion in Section 3 here above is a description of the status on the retail market in question at a national level and does not emphasise possible geographic difference in competitive conditions on the retail market in question. One can in many respects refer to this discussion in this connection.

845. Here in the following text, emphasis will be placed on discussing possible differences in competitive conditions that may exist at retail level by area. In a general manner and on the basis of municipalities, various aspects will be taken into account on the retail market, such as market share, pricing, quality of connections, number of significant competitors, service offer, marketing policy (e.g., advertisements) and the nature of demand. Section 7.6 here below, entitled “Assessment of homogeneity in competitive conditions in selected areas” contains detailed discussion of these aspects, both at retail and wholesale level, and reference is furthermore made to this discussion. There has been discussion here above on the distribution of copper and fibre-optic networks in this country in Section 7.3 and reference is furthermore made to this discussion.

846. Siminn provides retail service for broadband services virtually nationwide, as the former monopolist incumbent in electronic communications in this country. The company does this first and foremost by offering high speed connections over fibre-optic and copper network (first and foremost VDSL). At occasional locations, the company only offers upgraded ADSL connections, but examples of this are rapidly decreasing, and they are less than 3% of the total number of bitstream connections. The company enjoys what is called ubiquity on the market in question.

847. The number of competitors to the company varies somewhat by geographic area but significant competitors such as Vodafone, Nova and Hringdu provide retail service in all the most populated areas, and in addition to this there are local competitors such as Snerpa in the West Fjords. The Mila wholesale offer of close to nationwide bitstream access through Access Option 3 also provides purchasers of that service with access to all connected households and companies in the country. Each retailer has in reality access to the whole country with one access service at bitstream level.

848. Siminn market share was about 46% of the retail market in question at national level at the end of 2020. The Siminn market share by municipality varies somewhat, from [...] % at its smallest (Fljótshlí) and up to being almost 100% in the smallest areas. In the Capital City Area (Reykjavíkurborg, Kópavogsbær, Seltjarnarnesbær, Garðabær, Hafnarfjarðarkaupstaður and Mosfellsbær) Siminn had about [...] % market share, while it was common for the company's market share outside this area to be in the range of [...], apart from those municipalities where GR or local networks operate. The Siminn share in the whole GR operational territory was for example [...] % and [...] % in the Tengir operational territory.

849. In July 2020, Siminn and GR agreed on Siminn's bitstream access to GR's fibre-optic network. On 25 August 2021, Siminn began to provide its services via the GR network. The agreement states that at least [...] % of Siminn's customers will be on GR's network within [...] years, i.e., [...] customers compared to Siminn's current customer group. The PTA has made a forecast of the impact of this agreement on Siminn's market share based on this information and probable development in the opinion of the PTA. The forecast assumes that Siminn's

customers on GR's network will be around [...] by the end of 2021 and [...] by the end of 2022. It can be assumed that those customers will consist of both Siminn's customers who have been on the Mila network as well as from customers who have been on the GR network but have been customers of Siminn's competitors. The PTA expects that this proportion will be [...] until throughout 2021, but after that they will be [...] % from the first group and [...] % from the second group. It can therefore be expected that Siminn will significantly strengthen its position in GR's operating area throughout the lifetime of this analysis, especially in Seltjarnarnes and Reykjavík, where Siminn's market share was somewhat lower at the end of 2020 than elsewhere in the capital area or in the GR area as a whole. Siminn's market share was [...] % in Seltjarnarnes and [...] % in Reykjavík at that time, while it was [...] % elsewhere in the Capital City area and up to over [...] % in some places in the GR area. On average, Siminn's market share was around [...] % in the entire GR area. The PTA assumes that Siminn's market share will have reached about [...] % by the end of 2023 in the GR area, of which about [...] % in both Reykjavík and Seltjarnarnes, all other things being equal, and will reach above [...] % nationally by that time.

850. With respect to Siminn pricing, it is not possible to discern any difference by geographic area. The same applies to Siminn competitors where they operate.

851. With respect to quality of connections, is not possible to discern any difference by geographic area, where the relevant access technology is available. Quality of the access technology is thus comparable between areas. There is nothing to indicate otherwise than that this is also the reality with Siminn competitors, as in many instances it is the same underlying wholesale product which provides retailers with access to the customers. Other internal quality aspects in the operations of retailers, such as their core systems, capacity of their foreign connections and other aspects that can impact on consumer experience, appear to be comparable.

852. With respect to Siminn service offer, it is the same in all areas where the relevant access technology is on offer, i.e., Internet service, IPTV and VoIP. Fibre-optic connections and VDSL connections can easily offer all of the above services. It is mainly the weakest ADSL connections that may have difficulty handling this, but they are now very few and are decreasing rapidly in step with increasing fibre-optic rollout, at under 3%. Where there are weak ADSL connections, there is no difference in such connections by area, or in the service offered. This also applies to Siminn competitors.

853. With respect to marketing policy and other Siminn market behaviour, there is no indication that they vary between areas. For example, the company's advertisements are directed at all the inhabitants of the country and generally not at specific areas, except in the case of a specific temporary marketing campaign in specific areas. The same can be said about Siminn competitors. It is not possible to discern a difference in consumer needs by residence or by geographic area.

854. In the opinion of the PTA, it is not possible to discern a difference in demand for the above specified broadband service on the basis of area, neither with respect to Siminn products or those of its competitors.

855. With the above in mind, the PTA considers there to be no significant difference in competitive conditions on the retail market for broadband service in this country by geographic area and that the geographic market is therefore the whole country at retail level.

7.6 Assessment of homogeneity in competitive conditions in selected areas

7.6.1 General

856. When the appropriate geographic units have been selected, the NRAs should assess whether competitive conditions are sufficiently homogeneous between them for the country as a whole to be considered one geographic market, or sufficiently different such that the market should be segmented geographically into more than one area, or to impose obligations that vary by area.¹³⁵

857. When assessing homogeneity of competitive conditions, the NRAs should conduct an assessment of possible differences in competitive conditions with analysis of both the relevant retail and wholesale markets. Aspects should be examined, such as:

- 1) Barriers to entry into the relevant markets.
- 2) Number of significant competitors that exert competitive pressure on the SMP operator.
- 3) Market share of the potential SMP operator and of his competitors.
- 4) Pricing and possible price differences.
- 5) Other aspects, such as marketing strategies of parties to the market, service offer on the retail market and possible difference in content of the market, the nature of demand, quality of connections etc.

858. The most important of all is to investigate possible competitive pressure from significant competitors. Geographic analysis shall be based on real competitive conditions, as reflected by the behaviour of parties to the market (e.g., pricing) and the impact of such behaviour on market structure (e.g., market share). When conducting a geographic analysis, this shall be forward-looking to the extent possible, in connection with the above specified aspects, which among other things, means that the NRA should to the best of its ability try to envisage development of the various aspects throughout the lifetime of the analysis. Indicators on which such predictions are based shall be as objective as possible and among other things be based on prior development on the relevant market and assessment of additional information, e.g., on rollout plans of market players.

859. During forward-looking geographic analysis, it could come to light that intra-platform competition on Market 3a is inadequate, among other things as there is an insufficient number of network operators on the market. This could have a comparable impact on competition on Market 3b. This particularly applies if barriers to entry are also significant. Incentives for damaging collusion increase, the lower the number of network operators. Under such circumstances, a lack of wholesale obligations could lead to a lack of effective competition on corresponding retail markets to the detriment of consumers. As stated above, BEREC and NRAs in Europe have generally considered that electronic communications networks of more

¹³⁵ See pages 25-29 in the BEREC Common Position from 2014.

than one competitor of the potential SMP operator need to exist for competition to be deemed effective.¹³⁶

860. NRAs should also take into account those investments in electronic communications networks, and electronic communications systems that could take place in the lifetime of the relevant analysis. In the light of steadily increasing roll-out of high-speed networks, certain areas, where roll-out of high-speed networks from a competitor/competitors of the potential SMP operator has not taken place when the analysis is made, could have become profitable in the future. The same applies to bitstream systems. For this reason, it could be necessary during geographic analysis to have such areas particularly in mind, as a competitor/competitors of the potential SMP operator could make an entry there during the lifetime of the analysis.

7.6.2 Access barriers by area

861. Generally speaking, varying levels of competition between areas is a consequence of variance in the degree of entry barriers, as new competitors normally make their first entry into areas with fewer entry barriers and where economy of scale is greater. On electronic communications markets, barriers to entry are normally related to economy of scale and sunk costs. Such entry barriers can furthermore result from legal factors such as granting of licences. This means that it is an option to examine economy of scale and sunk cost by geographic area with the intention of drawing conclusions on varying competitive conditions. Economy of scale is more likely to grow, the greater the demand for the service in question. Aspects related to demand are e.g., total turnover, population density and density of companies. Though, such a study could provide indications, it is unlikely that these aspects on their own or jointly, could fully explain access barriers, as they are often explained by many interacting factors, which are often not clear.¹³⁷

862. One can assume that access barriers are more common in sparsely populated and more widespread areas than in more densely populated areas, as has been manifested with the rollout of the GR fibre-optic network in the Capital City Area and that of Tengir in Akureyri and widely in North Iceland. Those areas have seen the entries of players that compete with the former monopolist incumbent. Gagnaveita Skagafjarðar (GVS) was founded in Sauðárkrókur on the initiative of utility companies in the region, but it proved not to have a basis for operating as an independent unit and was therefore sold to Mila late in 2013 when it provided service to about 400 households and 40-50 companies and the company's network then reached 650 homes and 80 companies. Despite the fact that the system was fairly large, compared with fibre-optic networks in the countryside, it had still been too small to prove to have an operational basis. The experience of GVS had been that an electronic communications

¹³⁶ See e.g., paragraphs 122, 123, 124 and 152 in the BEREC Common Position from 2014. In the latter referenced paragraph it states: “A market characterised by only two players (e.g., the incumbent and a cable operator) may thus be deemed to be not sufficiently competitive to justify the withdrawal of obligations. As noted above, BEREC has already expressed its agreement with the economic theory on the risks of collusion derived from such market structure.” In the BEREC Opinion, BoR (13) 22 from March 2013, in connection with the review of the EU Commission of recommendations on the relevant markets, it states among other things that it is more difficult to achieve effective competition on markets where only two electronic communications companies operate. It then states in the BEREC document in question: “... the recommendations on Relevant Markets and its Explanatory Memorandum should also recognise this fact and, consistently, provide elements to assess when, in such markets, **a joint SMP position** could be found, leaving it up to NRAs to decide, on the basis of its national circumstances, on the best means to address these situations.” (PTA emphases edit)

¹³⁷ See pages 25-26 in the above specified BEREC Common Position from 2014.

company needed to have reached a specific size to be able to offer bitstream access in an economic way. This was probably one of the reasons why other municipalities had normally not seen the advantage in taking the same route without state aid.

863. The considerable investment in civil works for cables and for in-house connections has some economy of scale when one can connect more apartments for each metre of trench or many apartments with work with in-house cabling. Such economies of scale can be reached in the most densely populated apartment building districts, but the building pattern in many of the country's smaller urban kernels is not like that. In such places, detached houses, terraced houses and smaller blocks of flats are common, and the density and size of blocks of flats is usually less than in the Capital City Area. This can also have an impact with regards to development of bitstream systems on the local loops in question.

864. Access to economic trunk line connections for the service that central access with a fixed connection (bitstream access) needs to connect to service providers that mostly operate a central system from the Capital City Area, are also quite important in this connection. Another factor is that potential customers are fewer than in the Capital City Area and thus need to support higher costs for trunk line connections than is the case there. On 1 January 2021, the Siminn IP-MPLS network system was transferred to Mila. It is clear that no other electronic communications company in this country operates an IP transit network with national coverage, or such a network that is close to being as powerful as the Mila network in question.

865. One can therefore conclude that access barriers for new entries to the bitstream access market in question are significantly greater in rural areas than urban and systems both with regards to fewer possibilities to leverage economy of scope in developing networks and also with regards to costs for trunk line connections to provide service across the area.

866. As was stated in Section 7.3, where there was discussion on distribution of electronic communications networks, rollout plans and network topology in the year 2022 or 2023, more than 6,000 fibre-optic connections will have been deployed in the most sparsely populated parts of this country with the support of the Telecommunications Fund and in addition to this, a number of municipalities have embarked on such deployment without public funding. As stated there, Mila has in recent months and years purchased such networks, leased them long-term or deployed them with a grant from the municipality in question and/or from the Telecommunications Fund and continued development is expected in this direction. Mila furthermore offers bitstream service on those local networks that the company has not purchased or leased (with the exception of the GR network, apart from a very few connections in part of Árborg and Borgarbyggð). Given available distribution plans for parties like GR, Tengir, Snerpa and Austurljós, fibre-optic networks of Mila's competitors will and thus bitstream systems probably reached about [...] % of the country's homes and companies at the end of 2023, assuming that spaces will increase by about 3,000 per annum and will become 172,000 at the end of that time, whereas the combined distribution of these companies at the end of 2020, was 74% at a national level.

867. Mila has furthermore embarked on co-investment with GR on the one hand and Tengir on the other in a number of areas (in the Capital City Area, Borgarnes, Hvanneyri, Árborg and Reykjanesbær with GR and in Húsavík with Tengir). It is not unlikely that such cooperation could extend to other locations in the country during the lifetime of the analysis. This lessens entry barriers and reduces investment costs for further roll-out of fibre-optic local loops and bitstream service provided through these connections.

868. As is stated later in this document, in the discussion on behaviour of electronic communications companies by area, e.g., with respect to pricing, product offer etc., this difference in entry barriers does not seem to result in varying competitive conditions by area to any significant degree.

7.6.3 Number of significant competitors by area

869. A simple and often more effective method, which can also reflect entry barriers by area, is the number of competitors of the SMP operator that provide or can provide service in the relevant area or areas. It is easier to show this than to conduct the assessment mentioned here above with respect to entry barriers, and this method furthermore shows how entry barriers really work in practice.¹³⁸

870. The analysis that needs to be conducted to show the number of competitors that provide or can provide service in a specific area can vary according to the service market being examined in each instance. On Market 3b, it is those players that operate their own active equipment, i.e., xDSL, P2P and/or GPON bitstream systems here in this country in the various areas.

871. It is important to have in mind that competitive conditions can also vary by area as a result of the size of such competitors, no less than as a result of their number. One method could be to only include competitors that have achieved specific market share or distribution at a national level, i.e., significant competitors. Such a method is simple to apply and at the same time excludes competitors that can only exert limited competitive pressure on other competitors. From precedence in Europe, it seems that such parties need generally to have achieved at least 10-15% market share in a given area.

872. It must be considered most unlikely that consumers and companies in this country will have access to more than two options of service providers of bitstream service, and at many locations Mila offers both xDSL on copper network and GPON on fibre-optic network in the GR operational territory and also in the Tengir operational territory in part in Akureyri, an in fact wider across the country. One can assume that in many areas in the countryside it is unlikely that there will be more than one service provider. Mila has requested the withdrawal of the universal services obligation, as fibre-optic networks under the auspices of municipalities have taken over the service provided by copper network with the increase in performance that fibre has over copper. The PTA however reiterates that Mila has been purchasing or leasing many of these local networks at many locations in the country and it is likely that this development will continue throughout the lifetime of this analysis. Mila provides bitstream service on almost all of the local networks where this has not happened (except on the GR network, apart from a very few connections in part of Árborg and Borgarbyggð).

873. The Siminn Group furthermore plans to decommission the traditional PSTN voice telephony system, as voice telephony using the IP protocol takes over and Mila announced its objective in the autumn of 2020, to decommission the copper system in phases over the coming 10 years. These Mila plans will therefore not in the opinion of the PTA have a significant impact during the lifetime of this analysis. With regards to these plans and to the PTA assessment of their consequences, reference is made to discussion in this analysis, among other things in Section 3.2.2.2 (Statistical information), which is a subsection of Section 3.2

¹³⁸ See page 26 in the above specified BEREC Common Position from 2014.

(Definition of broadband access at retail level) and in Section 6.3 (Distribution of networks, distribution plans and network topology).

874. It is fairly clear that fibre-optic connections will replace the overwhelming majority of these copper connections, if not all, though it is not out of the question that wireless solutions could replace some of the copper connections. The roll-out of fibre-optic connections through the project, Iceland Optical Connected, makes it unlikely that there are significant business opportunities in that sector. The PTA considers that mobile network solutions, including 5G, will rather be an addition to fixed line networks than a substitute, although one may expect that a small proportion of homes/companies will settle for mobile network solutions. In the autumn of 2020, the PTA directed questions to mobile phone companies regarding likely development of building and take-up of 5G service over the coming years, but they explained that there was great uncertainty about this development. It is therefore difficult to make projections about this development, at this point in time.

875. Widely outside the Capital City Area and larger urban clusters, one may consider it unlikely that two, and even less likely three companies will deploy fibre-optic to households and companies and offer bitstream access through this. It is likely that in the more dispersed regions and in smaller urban clusters, there will only be one choice. In the same way one must say that the possibility of a third-party entering the market at those locations where there are really two network operators is negligible and unrealistic. As previously stated, Mila seems to be systematically guaranteeing access for itself to the municipality networks in question, either by purchasing them, leasing them long-term, deploying them with state aid or taking over their operations or at the very least providing its GPON bitstream service through them. Taking into account the above specified future outlook of decommissioning of the copper system, it is clear that Mila is actively endeavouring to assure its future position as a nationwide network operator.

876. It is mainly GR in Southwest Iceland and Tengir in North Iceland that can be considered significant competitors to Mila on the relevant market.

7.6.4 Market share in wholesale and retail by area

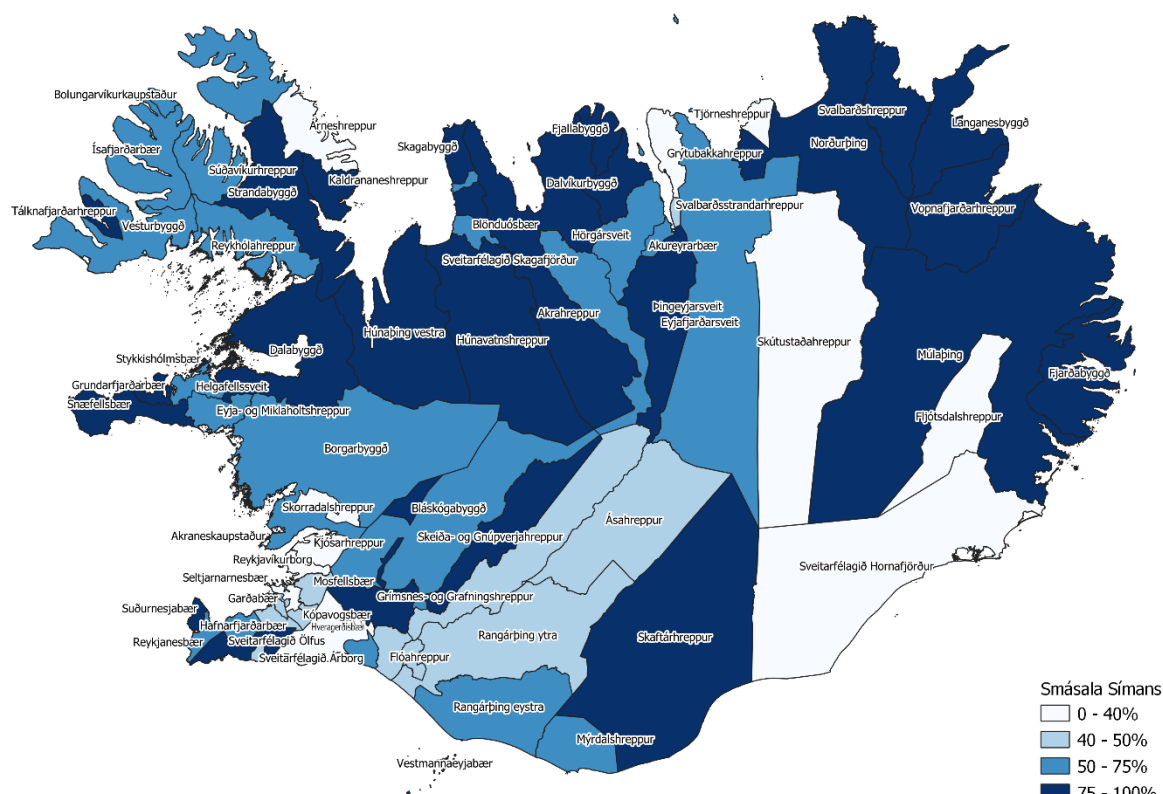
877. One method of including the size and strength of competitors by area when conducting geographic analysis, is to examine the market share of market players in specific areas. One must keep in mind that at this stage in the case, these are not “real” market shares, as the final delineation of the geographic markets is not yet concluded. It would be ideal if not only market share at a given point of time was shown, but also its development over time in order to make it possible to identify certain trends in this connection. In this context, two points in time are often enough. Should there be indications of significant changes in market share through points in time, then this can be an indication of varying competitive conditions by area.

878. As such analysis should be forward-looking, it is important that NRAs endeavour to assess future development of market share during the lifetime of the analysis, and whether the deviations that have been identified from the current and historical market shares are likely to increase, decrease or remain relatively stable. It could for example be helpful to categorise areas on the one hand into those areas where the market share of the potential SMP operator is high and stable or only decreases slowly, and on the other hand, areas where this operator’s market share is low and stable or is declining.

879. The PTA has therefore collected data on the retail and wholesale market for connections with a fixed usage location, where the data has been divided by municipality over five points in time, i.e., 30 June 2018, 31 December 2018, 30 June 2019, 31 December 2019 and 31 December 2020. Data has been collected on retail share in Internet service, on wholesale market share on the markets in question and on deployment of networks and bitstream systems, both networks and systems owned by Mila and by others, and also on the adoption of service on each network. Data has been collected in this manner, on the number of customers in each municipality and on the network and system through which the service is provided. The conclusions of this data collection are shown graphically here below, as of the status at the end of 2020.

880. As was done here previously in the analysis, the first step will be to define the competition on the retail market. In accordance with the main principle in competition law that when a company's market share exceeds 50% there need to be very good reasons for the company in question not to be deemed to have a dominant position, the PTA has analysed market shares by municipalities in accordance with that criterion. It should furthermore be noted that there are many examples in competition law where a market share in the range of 40-50% has been considered sufficient to come to the conclusion that a party has market dominance if other appropriate aspects that have been examined support this conclusion.

Figure 7.7 Siminn market share in Internet service by municipality at end of year 2020



Source: Post and Telecom Administration

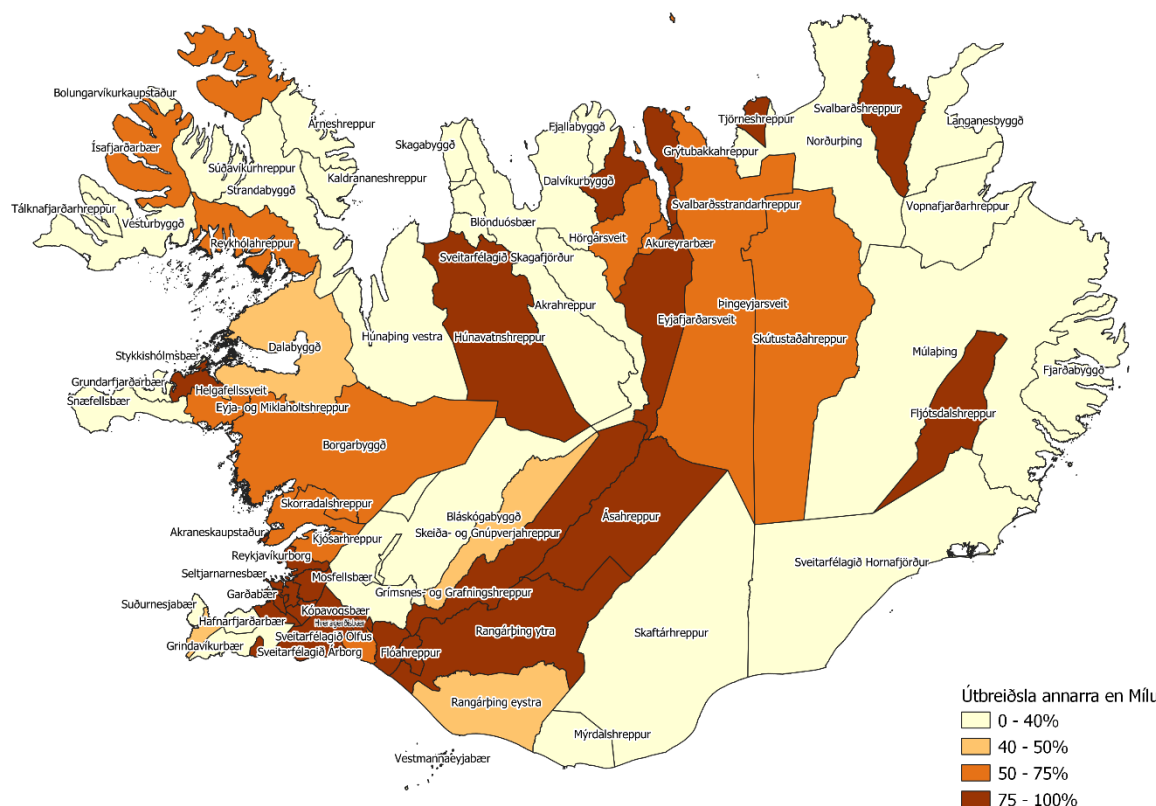
881. It comes to light that Siminn enjoys more than 50% share of the market for retail Internet service, in most places in the countryside. It is mainly at locations where parties other than

Mila offer active service over fibre-optic, where the Siminn share is below the above specified criteria. Siminn is however making gains in some locations, e.g., Siminn had less than 40% share in Ásahreppur in South Iceland and in Akrahreppur in Skagafjörður at the end of 2018 but now has over 40% at end of year 2020. Conversely, in the Ölfus municipality, Siminn had over 40% at the end of 2018 but was under that figure at end of year 2020.

882. When the distribution of networks owned by parties other than Mila is examined the situation is uneven across the country. In the Capital City Area and surrounding area and at Eyjafjörður and at various locations in the Tengir distribution area in North Iceland, distribution of fibre-optic networks is now substantial. One could also name Hveragerði, Árborg, Hella, Hvolsvöllur, Reykjanesbær, Akranes and Borgarnes in the Southwest corner of the country in this connection. There are furthermore urban kernels in the West Fjords where Snerpa has deployed a fibre-optic network, particularly in Ísafjarðarbær, and also at Egilsstaðir in East Iceland, where Austurljós has deployed a fibre-optic network. In municipalities in the countryside with few inhabitants, that have received state aid from the Telecommunications Fund in connection with the project Iceland Optical Connected and where there is no urban kernel within the municipality, there is also significant distribution of networks other than those owned by Mila, often close to almost 100% when all registered farms are connected in connection with that project. In such municipalities, connections are generally a few tens or 100 at most.

883. In other municipalities that have received funding because of market failure in sparsely populated areas, the urban kernel often has VDSL service from Mila and Mila share in the distribution is therefore still high in the municipality as a whole. In recent years, Mila has however in addition to its vigorous fibre-optic rollout in the Capital City Area and widely in the Southwest corner of the country, been rolling out fibre-optic in various urban kernels in the countryside, with or without state aid, purchasing or ensuring long-time control over such networks, such as in Súðavík, Blönduós, Skagatrönd, Sauðárkrúkur, Hofsóss, Akureyri, Húsavík and Egilsstaðir. The PTA expects this development to continue throughout the lifetime of the analysis. On 9 February 2021, Mila announced the commencement of fibre-optic rollout in part of the Westman Islands in the year 2021.

Figure 7.8 Distribution of local loop networks other than those of Mila, by municipality at end of year 2020



Source: Post and Telecom Administration

884. Although a network may have significant distribution among households and companies in a municipality, this does not necessarily mean that adoption of service will follow. But when households and companies have limited service on older networks and where this is replaced by fibre-optic, there is a significant incentive for customers to change the party that provides bitstream service for the Internet connection through which they receive service. This is where there is a convergence between which company is the retailer that the consumer in question approaches and whether that retailer has a business relationship with the relevant bitstream provider. For this reason, the PTA has also examined market share in bitstream lease by municipality. There it comes to light that it is precisely in such municipalities where a fibre-optic network replaces a limited copper network that Mila share has become low in wholesale of local loops.

Hlutdeild Milu í bitastraumi

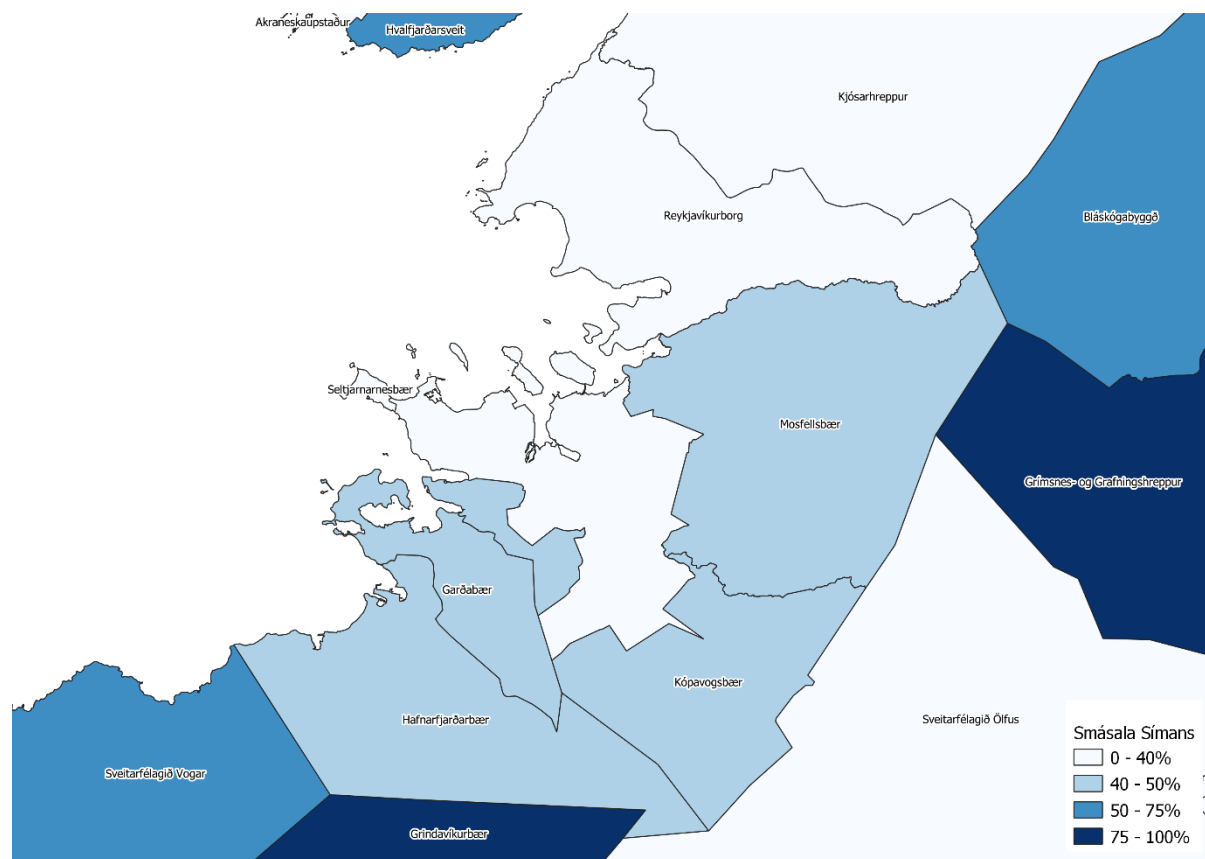
- 0 - 40%
- 40 - 50%
- 50 - 75%
- 75 - 100%

885. The PTA considered it necessary to make a special examination of the Capital City Area. The situation there is that the Siminn retail share was such that at the end of 2020 it was below 40% in Reykjavik ([...])% and between 40 and 50% in other municipalities, except Seltjarnarnes and highest in Garðabær at [...]. Seltjarnarnes is the municipality where GR has operated longest. It was there that most was done in connecting households, as GR connected in-house cables and installed fibre-optic endpoint equipment in all households in the municipality. This project was completed in 2007, which means that there is more than a 13-year history of full deployment of the fibre-optic network in that town in competition with first Siminn and then Mila after it came into existence as a separate company. In Seltjarnarnes the Siminn share was [...]% at the end of 2020. More specifically, Siminn's market share was [...]% in the Capital City Area at the end of 2020 and [...]% in the whole of GR operational territory. Corresponding figures for end of year 2018 were [...]% in the Capital City Area and [...]% in the whole of GR operational territory. Figure 7.10 here below shows the Siminn share in the Capital City Area. The Siminn share has therefore not changed to any significant degree during these years.

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in the Ölfus municipality [...] is the Siminn share of less than 40%. As previously stated, the Siminn market share at the end of 2020, was 46.3%.

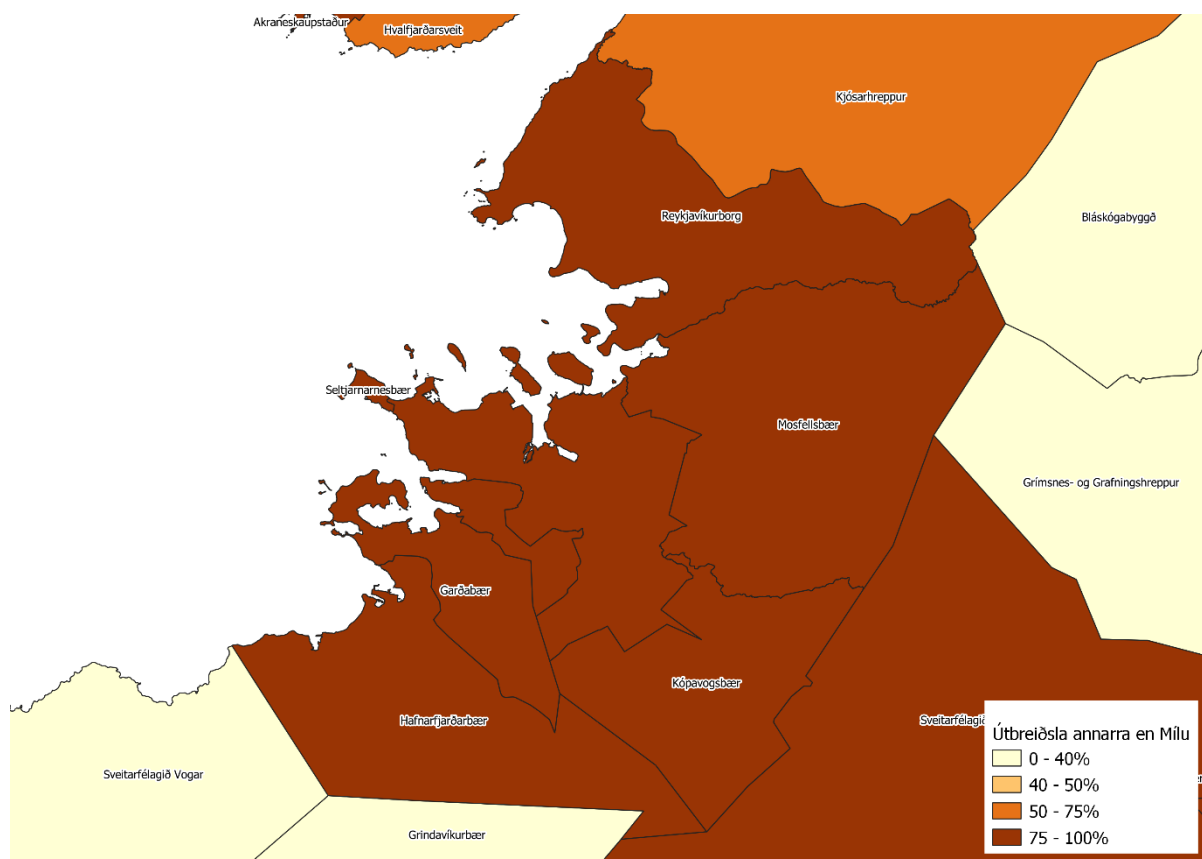
Figure 7.10 Siminn retail share in the Capital City Area at end of year 2020



Source: Post and Telecom Administration

887. In the Capital City Area, GR has now expanded its local loop network and thus bitstream system, to cover nearly all households and companies, as can be seen in the below specified figure 7.11. This means that the distribution of local loop networks and thus bitstream systems of parties other than Mila is now more than 90% in all municipalities in the Capital City Area, where GR has now to all intents and purposes, achieved full distribution to households in the area, but there is still work to be done by the company in corporate connections.

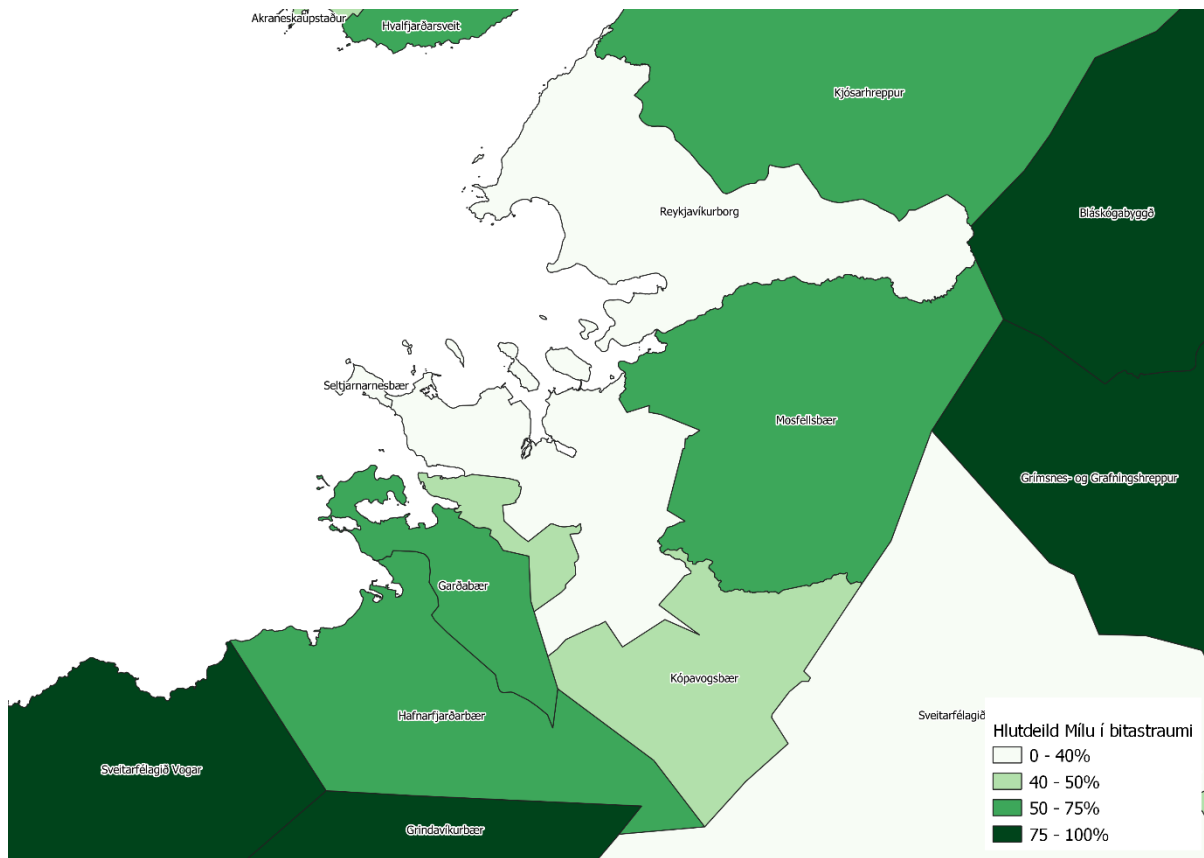
Figure 7.11 Distribution of networks in those Mila in the Capital City Area at end of 2020



Source: Post and Telecom Administration

888. As previously described, a share of over 40%, is often considered a strong indication of a company's market dominance in competition law, particularly if other factors than market share support this, and it is almost certain that this is the case if the share is over 50% unless special circumstances indicate otherwise. In 7.11 one can see that at end of year 2020, Mila has over 40% share of the wholesale market for local loop lease in all municipalities in the Capital City Area outside Reykjavík and Seltjarnarnes and in most of them around 50%.

Figure 7.12 *Mila share in wholesale of local loop lease in the Capital City Area at end of year 2020*



Source: Post and Telecom Administration

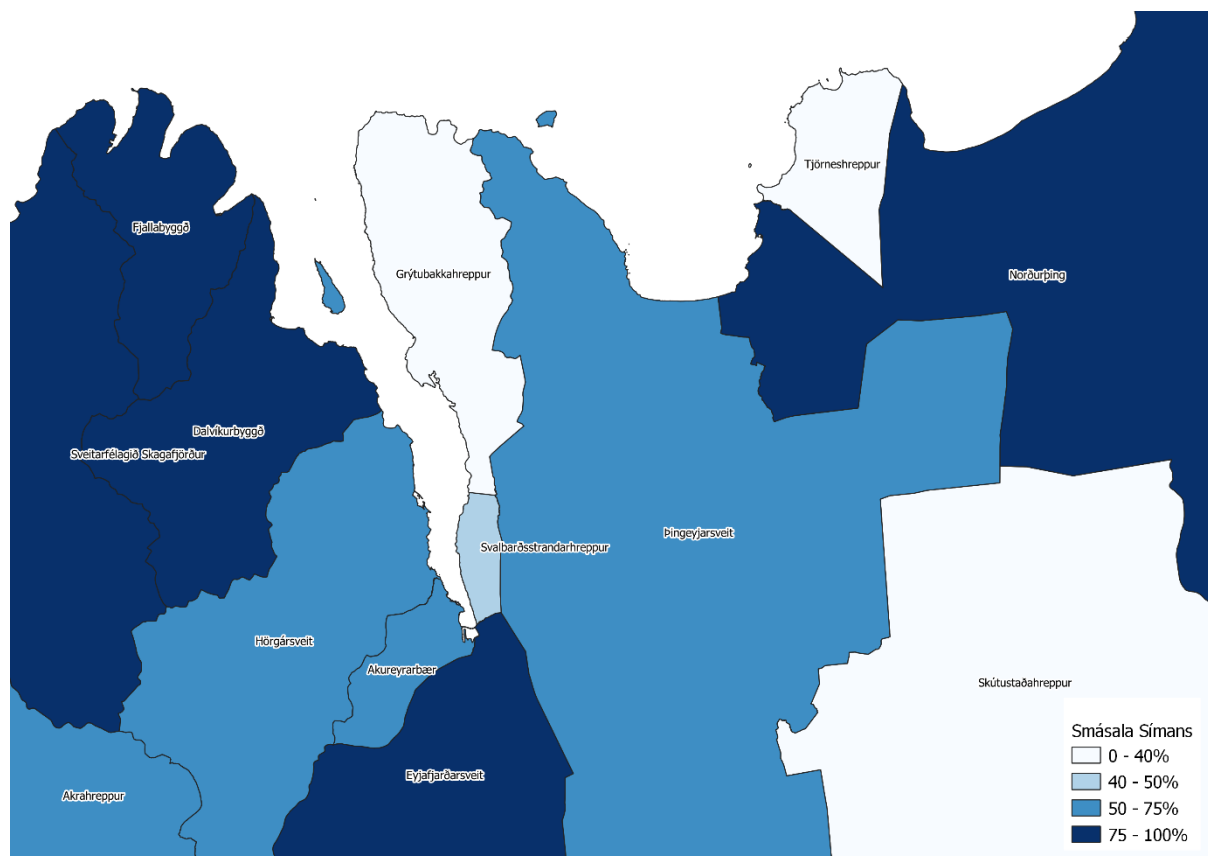
889. As previously stated, Siminn and GR agreed on Siminn's bitstream access to GR's fibre-optic network in July 2020. On 25 August 2021, Siminn began to provide its services via the GR network. The agreement states that at least [...] % of Siminn's customers will be on GR's network within [...] years, i.e., [...] customers compared to Siminn's current customer group. Based on information obtained by the PTA, it is likely that Siminn's customers on GR's network will be around [...] by the end of 2022. It can be assumed that those customers will consist of both Siminn's customers who have been on the Mila network as well as from customers who have been on the GR network but have been customers of Siminn's competitors. The PTA expects that this proportion will be [...] until throughout 2021, but after that they will be [...] % from the first group and [...] % from the second group. It can therefore be expected that Siminn will significantly strengthen its position in GR's operating area throughout the lifetime of this analysis, especially in Seltjarnarnes and Reykjavík, where Siminn's market share was somewhat lower at the end of 2020 than elsewhere in the capital area or in the GR area as a whole. Siminn's market share was [...] % in Seltjarnarnes and [...] % in Reykjavík at that time, while it was [...] % elsewhere in the Capital City area and up to over [...] % in some places in the GR area. On average, Siminn's market share was around [...] % in the entire GR area. The PTA assumes that Siminn's market share will have reached about [...] % by the end of 2020 in the GR area, of which about [...] % in both Reykjavík and Seltjarnarnes, all other things being equal. Moreover, the PTA assumes that Siminn's market share nationwide will exceed [...] % at this point. PTA can see no indications that the Siminn share will decrease for

some reasons during the lifetime of the analysis, which would counteract this probable development resulting from Siminn entry to the GR fibre-optic network.

890. In the operational territory of Tengir, the position is not entirely analogous to the position of GR in the Capital City Area as Tengir distribution to households and companies was about 75-90% at the end of 2020, while GR has over 90% and up to 100% distribution in the Capital City Area. In Dalvíkurbyggð, Tengir has nevertheless over 90% distribution, but under 75% in Hörgársveit.

891. Tengir has for a long time leased dark fibre local loops where Mila has developed active GPON bitstream service. The Siminn retail share is generally quite high in the Tengir operational territory, about [...] % on average at the end of 2020. In a number of sparsely populated municipalities, it was however lower than [...] % at this time, and they are Grýtubakkahreppur [...] %, Skútustaðahreppur [...] % and Tjörneshreppur [...] %. The Siminn market share in the very sparsely populated Fljótsdalshreppur in East Iceland, where Tengir operates bitstream equipment on the municipality's fibre-optic network, is on the other hand only [...] %, but there the local loops only number a few tens. Siminn has more than 40 % market share in 57 municipalities of 69 and over 50 % in 48 municipalities.

Figure 7.13 Siminn retail share in the main Tengir operational territory at end of year 2020

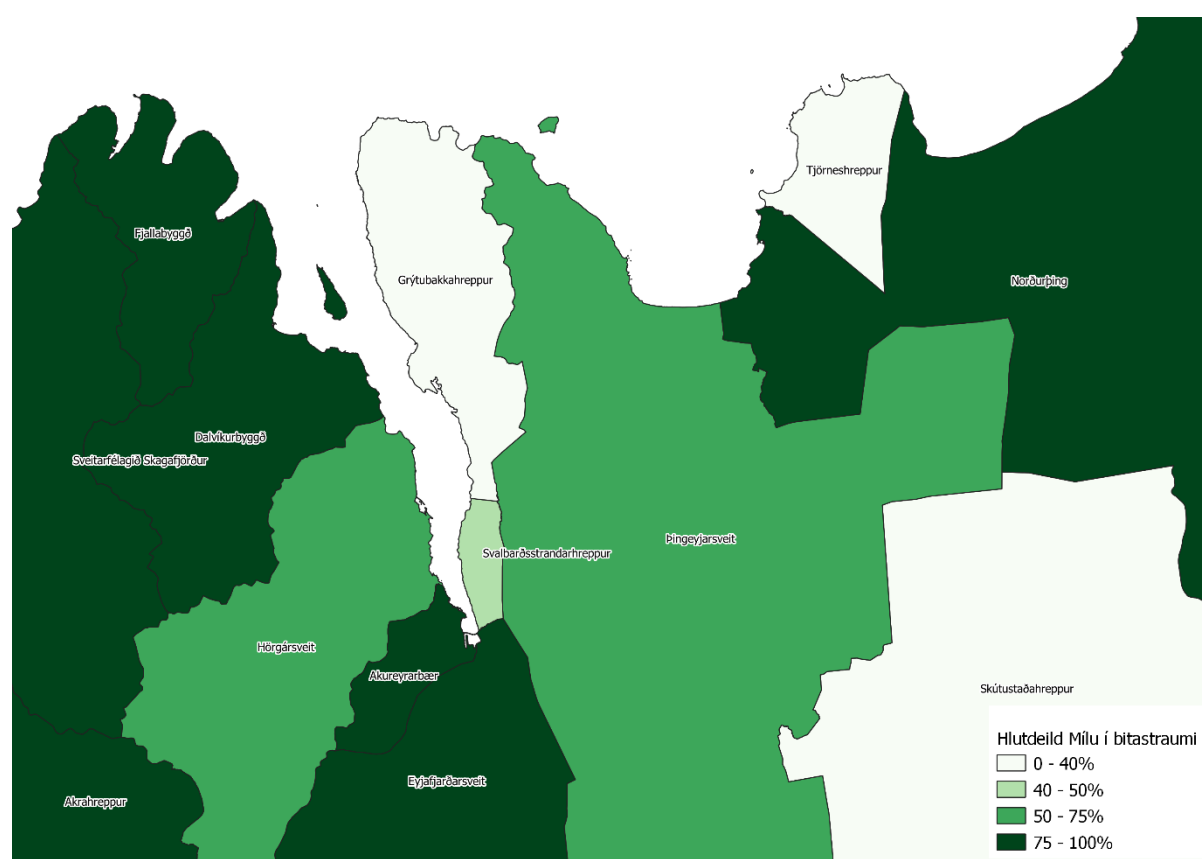


Source: Post and Telecom Administration

892. Mila wholesale share of local loop lease is at many locations under 40%, and also under 50% in the Tengir operating territory. Share in bitstream lease is however higher because of the Mila local loop lease with Tengir which Mila uses for its GPON service. As can be seen in

the figure here below, the Mila share in bitstream is widely over 50% and it is over 75%, for example in Akureyri town. As a result of the modest Tengir distribution plans in coming years and potential, Mila fibre-optic rollout in Tengir operational territory, including in Akureyri, the PTA considers that this position will not change significantly during the lifetime of the analysis, unless if GR and Tengir reaching agreement on GR entry into the Tengir network, where GR would begin to offer bitstream service. It is impossible for the PTA to estimate the likelihood of such an agreement at this point in time.

Figure 7.14 Mila share in wholesale of local loop lease in the Tengir Area at end of year 2020



Source: Post and Telecom Administration

893. The Mila market share on the relevant market was [...] % in the Snerpa operating territory in the West Fjords at the end of 2020. Given rather modest Snerpa distribution plans for the coming years, the PTA considers that this situation will not change much during the lifetime of the analysis, although Mila market share may decline somewhat. It could however increase if Mila reached an agreement on access to the Snerpa fibre-optic network in order to provide its bitstream service, and negotiations have recently been ongoing between the companies on this matter.

894. According to PTA data, there has not been any a significant change or reversal in market share at the retail or wholesale levels within individual municipalities during the above specified 30-month period. The Mila market share has however widely been on a slow decline. The PTA considers that the situation will not change significantly during the lifetime of the analysis with regards to the development of market share. Where local fibre-optic networks have been taken into operation, shares have changed quite rapidly at some locations, but there

the customers are so few that the shifting of a few customers could have a significant impact on shares in the municipality in question, which would be negligible at national level.

895. At the end of 2020, Mila market share at national level on Market 3b was 57% after having been 65% at the end of 2013. The drop in market shares thus only amounted to just over 1 percentage point per annum during these 7 years. The Mila market share, varied somewhat between municipalities on the relevant market at the end of 2020, see the table below which shows Mila market share in each of the country's 69 municipalities:

Table 7.1 – Mila market share in bitstream service in each municipality at end of 2020

[...]

896. In July of 2020 Siminn and GR entered into a contract for Siminn's bitstream access to GR's fiber network. On the 25th of August 2021 Siminn begun offering service over GR's network. The contract stipulates that at least [...] % of Siminn's customers of internet service shall be on GR's network within [...] years of service commencing, i.e. about [...] customers according to Siminn's present customer base. PTA has forecasted the effect of this contract on Mila's market share using these premises and likely development according to PTA. The forecast assumes that Siminn's customers on GR's network will number [...] at the end of 2021 and about [...] at the end of 2022. It can be assumed that those numbers will consist of both current customers of Siminn that previously have been on Mila's network and customers of Siminn's competitors currently on GR's network. PFS assumes the proportion of each group will be [...] in 2021, but [...] % from the former group and [...] % from the latter group going forward. Therefore, it can be expected that Mila will lose some market share in GR's operating area during the lifetime of this analysis, especially in Seltjarnarnes and Reykjavik, but there Mila's share is currently lower than elsewhere in the Greater Reykjavik Area or in GR's area as a whole. Mila's share in bitstream was [...] % in Seltjarnarnes at the end of 2020 and [...] % in Reykjavik at the time but [...] % in the whole of GR's area. PTA forecasts that Mila's share in bitstream will be [...] % at the end of 2024 in GR's whole area as it currently is, about [...] % in Reykjavik and [...] % in Seltjarnarnes, everything else being equal. In this period PTA forecasts that Siminn's share of retail internet access services will markedly strengthen, especially in Reykjavik and Seltjarnarnes.

897. The PTA considers that Mila market share on the relevant market will decline somewhat during the lifetime of this analysis at national level but will in all likelihood continue to be over 50% at the end of 2023. In this context, it is taken into account that a number of Siminn customers will move from the Mila systems to the GR system, though Siminn will without doubt also gain a significant number of customers of its competitors that are already on the GR system. The decommissioning of the PSTN voice telephony service and the first steps in the Mila 10-year plan for decommissioning the company's copper network could have a small impact during the lifetime of the analysis such that the Mila share would decline. Given the modest distribution plans of electronic communications infrastructure companies apart from Mila and Mila's ambitious distribution plans for the coming years, the PTA considers that the decline in Mila share on the relevant market will decelerate during the lifetime of the analysis when compared to the last 7 years, which was a period when GR among other things, conducted rapid fibre-optic development which now appears to be much less rapid and will probably be that way in the coming years. As is understandable, deployment of fibre-optic local loops commenced in the most economic areas where the number of residences at each address was most, which means that new locations become increasingly less economic as roll out

progresses. This is likely to have the effect that continued deployment will decelerate. For this reason, the PTA considers it likely that the Mila market share will be in the range of 50-55% on the relevant market at the end of 2023. This is with the reservation that large customers of GR, such as Vodafone, do not increasingly switch from the GR network over to the Mila network, [...]. If this should prove to be the case, the situation could change significantly, strengthening Mila and weakening GR.

898. This furthermore means that Mila market share is likely to decrease somewhat in those municipalities where an alternative electronic communications infrastructure company is in place, particularly where new civil works will be implemented during the lifetime of the analysis, while remaining unchanged where Mila is the only party offering electronic communications infrastructure. As in Mila's opinion, there is no reason to segment the market geographically in this country, it is however the situation at national level that is most important in this context.

7.6.5 Pricing and possible price difference in wholesale and retail by area

899. Another important criterion when identifying whether competitive conditions may be variable between areas is the possible price difference between them at both retail level and wholesale level. If pricing of the potential SMP operator and pricing of his competitors are the same or similar across the whole country, i.e., not significantly variable between areas within the companies in question, this could provide indications that competitive conditions are not sufficiently heterogeneous between areas to justify segmented geographic markets or varying obligations by geographic area. This on its own does not however, always have to be the reality, as from the point of view of consumers, there could be a significant difference between "competitive areas" and areas where limited or no competition exists, despite the fact that the potential SMP operator's prices are the same across the country.¹³⁹

900. The reason could be that when the potential SMP operator sets the same price across the whole country, with the objective of maximising profit, he has to find a balance between pricing where he has a monopoly position (dominant position) and lower prices where he is in competition with other players on the market. The likely conclusion is a compromise between these two prices, as the price is lower as the "competitive area" is larger. If the "competitive area" is sufficiently large, the pricing of the potential SMP operator should be rather low, and in addition to this the price difference between him and his competitors should be small. Under such circumstances, it would be justifiable to conclude that the geographic market is the whole country because of widespread common pricing constraint. In those instances where the "competitive area" is on the other hand, small, the "monopoly price" has more weighting in the pricing decision of the possible SMP operator and there can thus be a significant difference between his price and that of his competitors. This probably leads to a situation where the potential SMP operator has a low market share in "competitive areas". This means that consumers could perceive a significant price difference. While consumers can only purchase relatively expensive service from the potential SMP operator in areas where there is little or no competition, a relatively large number of them can purchase less expensive service from the competitors in the "competitive areas". In such instances, considerations about margin squeeze

¹³⁹ See pages 27-28 in the above specified BEREC Common Position from 2014.

cannot be good arguments for having the country as one geographic market, despite the fact that the potential SMP operator maintains equal prices across the whole country.¹⁴⁰

901. Another aspect that NRAs must keep in mind when they examine pricing in geographic analysis, is that uniform pricing does not necessarily indicate that the country is one geographic market if the pricing is the consequence of obligations subsequent to the designation of a party as having SMP. The discussion here above applies first and foremost to instances where the potential SMP operator prices his product in the same manner across the country entirely and of his own free will or where he is obliged to do so in another manner and subject to such obligations. If the uniform price across the country is the conclusion of obligations that were imposed subsequent to market analysis on the market being examined, the NRA in question must predict what the position would be if the obligations were not in force (modified greenfield approach).

902. If the potential SMP operator does not maintain uniform prices across the country, this could give strong indications that differing competitive conditions exist between areas. This gives an indication that competitive pressure is greater in those areas where prices are lower. Price difference can however also reflect varying underlying costs by area. The relevant NRA must therefore, under such circumstances, assess whether the price difference results first and foremost from differing underlying costs or differing competitive conditions by area, or both.¹⁴¹

903. Another aspect that needed to be examined is whether prices are comparable or variable between the potential SMP operator and his competitors.

¹⁴⁰ See e.g. page 29 in document Cave, M., Stumpf, U., Valletti, T: A review of certain markets included in the Commission's recommendations on Relevant Markets subject to ex ante Regulation, from 2006, states among other things: „ ... *absent SMP regulation, a firm with market power subject to a uniform pricing constraint chooses a profit-maximizing price based on its demand curve in the universal service area as a whole rather than the distinct demand curves where it faces different levels of competition. As a result, constraints on its behaviour in competitive areas are not extended to less competitive ones, but constraints across all areas are averaged or pooled. If the resulting price contains excess profits, because of a large weight of non-competitive customers, rivals in competitive areas will either force possibly localized price cuts by the incumbent – if they are allowed – or will enjoy considerable competitive advantage. In either case conditions of competition will differ.*”

¹⁴¹ In the above specified Decision by the EU Commission from 7 February 2020 in the case of Sweden, which was described in detail here above, it was stated that Telia collected the same price across the country for access through fibre-optic to single-unit dwellings on Market 3a. The company's fibre-optic network however only reached 37% of the population. On the other hand, the wholesale price for connections to multi-unit dwellings varied by area. This difference seems, in the opinion of the PTA, to be based on density of dwellings and varying deployment costs. Local networks had a tendency to price wholesale access in accordance with costs and only to a limited extent according to pricing by Telia. The prices of local networks in instances of connections to multi-unit dwellings were anything from under SEK 500 and up to over SEK 4,000, while to single-unit dwellings they ranged from SEK 140 to SEK 220 for each single-unit dwelling. The Commission had agreed with BEREK in that case that comparable prices across the whole country were not, in isolation, sufficient arguments for the geographic market being the country as a whole, particularly if such comparable prices only reached 37% of the wholesale market in question as was actually the case in Sweden. With regards to pricing criteria, it was also necessary to assess prices of parties other than Telia. The PTS had not succeeded in demonstrating that prices of the local networks were comparable with those of Telia. On the contrary, PTS had identified a difference between wholesale prices of the various local networks. In the light of the above, the Commission issued an opinion to the effect that homogeneity in access prices on Market 3a for fibre-optic did not exist in Sweden. The PTS arguments to this extent were thus inadequate to come to the conclusion that the geographic market should be the country as a whole.

904. It is important to examine pricing and possible price differences, both at wholesale and retail level. In the opinion of the PTA, pricing at retail level has certainly no less weighting in pricing at wholesale level in this assessment as that is the price that the consumers experience.

905. If prices are variable between areas, this does not necessarily mean that the market should be automatically segmented in accordance with such price difference of the potential SMP operator. The problem with such an approach was that the potential SMP operator could then have a direct impact on geographic definition of the relevant market, including segmentation of areas, and/or price difference could change at any particular time in accordance with his pricing policy. It is therefore more appropriate to examine the reasons for variations in pricing, i.e., whether they result first and foremost from varying competitive pressure between areas or issues such as operational distribution costs, economy of scale and population density.

906. In general, the above specified analysis of pricing at wholesale level should be directed at the market being analysed in each instance. On the other hand, information on pricing on wholesale markets is not always readily available and it can be difficult to acquire such information. In such instances it could be useful to examine pricing on corresponding retail markets when analysing the relevant wholesale market. When such is not appropriate, the NRA should place greater emphasis on other criteria that need to be examined. Despite the fact that an NRA encounters problems when conducting a detailed analysis of pricing, it can nevertheless be possible to examine whether market players could or were likely to use varying pricing by area or whether market players that offered their services solely in a specific area or areas, priced their service in a significantly different manner compared to that of the SMP operator.

907. It was stated in the above specified BEREC Common Position from 2014, that, if possible, development of pricing and or price difference over time should be analysed. On specific markets, it could also be appropriate to examine pricing in connection with quality or characteristics/attributes of the service, but such aspects could also vary between areas.

908. At retail level, it is not possible to identify any price difference by area with Siminn. The same can be said about competitors of Siminn at retail level. Then there is no significant price difference between Siminn and the company's competitors in Internet service at national level as was covered in Section 3.1.2 here above. The PTA considers that these are very strong indications that there is no need to segment geographic markets in this country, as consumers here experience no difference in this respect.

909. Mila has however pointed out that in the GR operational territory, set-up of Mila household connections for fibre-optic local loops is without charge, but elsewhere it is at the expense of users. This appears to be the only price difference that users experience between areas. In the opinion of the PTA, it is not a tipping point with respect to whether the wholesale market in question should be defined geographically or not, that Mila on-site service is less expensive in the immediate environment of the company's operational sites, when the service market is the whole country. This is a one-off cost and a large part of increased cost in the countryside is per diem and other additional costs for travelling in the countryside, where distances are important. There are therefore clearly cost considerations that apply in this instance. This does not apply to the Akureyri area, where there is however, competition from Tengir, as costs there are higher for Mila as that area is not in the immediate environment of the company.

910. In addition to this, the PTA considers that this one-off cost is not high in the light of the fact that the average lifetime of the contractual relationship with the consumer is likely to be counted in years rather than months. PTA sister institutions have in some instances come to the conclusion that such average lifetime is 60 months. It could easily be longer than that when it relates to the underlying carrying layer, than when switching service provider on the same carrying layer. The consumer survey that the PTA commissioned in the autumn of 2020 also indicates that Siminn customers are less likely to switch service provider than customers of other service providers.

911. One reason for this could also be that the Mila VDSL system is good in the greater Capital City Area and in Akureyri, where among other things, vectoring is offered, and for this reason Mila could consider that the collection of a connection charge could delay transfer of customers from the Mila copper network to the company's fibre-optic network, which is Mila's long-term objective. Though it is possible to achieve synergy with other Mila operations in the Capital City Area when implementing these connections, this does of course involve some costs. This cost is collected in one way or another for these local loops, and one could assume that it is collected with monthly charges in the greater Capital City Area. When one has calculated connection cost and start-up costs, as presented in the Mila tariff, into the monthly charge, then the Mila price areas are in fact 3, i.e., the greater Capital City Area, Akureyri and the countryside. The cheapest is in the area where the costs are lowest. One may also point out that a sizeable proportion of fibre-optic local loops owned by Mila in the countryside were purchased after having been connected to homes, which means that it is not in all instances that a connection charge is collected in the countryside.

912. Mila pricing of fibre-optic service varies by area at wholesale level, i.e., both for fibre-optic local loops (Market 3a) and for Access Options 1 and 3 (Market 3b). The following table shows Mila monthly prices for fibre-optic service (ex VAT):

Table 7.2 Mila monthly price for fibre-optic service

Area	Fibre Local Loop to Homes	Fibre Local Loop to Companies	Access Option 1	Access Option 3	Fibre Local Loop to homes with A1
Capital area and Akureyri	2,120 ISK	5,050 ISK	960 ISK	1,337 ISK	3,080 ISK
Rural	2,480 ISK	5,350 ISK	1,600 ISK	1,977 ISK	4,080 ISK
Difference in %	17%	6%	67%	48%	32%

913. As can be seen in the table, the Mila monthly prices are higher in the countryside than in the Capital City Area and Akureyri. The price difference for fibre-optic local loop to the home is 17% between the areas in question, the price difference for bitstream service over Access Option 1 is 67% between the areas in question and 48% for Access Option 3. Then the price difference for fibre-optic to companies is significantly less between areas, that is to say only 6%.

914. One must take into account that Mila PON local loops are generally not sold without bitstream (GPON), but the product is rather in the vast majority of cases provided with bitstream, often on Access Option 1 (A1). According to information from Mila dated 11 December 2020, there were only [...] Mila fibre-optic connections sold without bitstream which represents [...] % of Mila leased local loops, on the basis of the number of local loops leased by the company at the end of June 2020. It is therefore in the opinion of the PTA more reasonable to take into account development of the price of local loops with bitstream (most often in

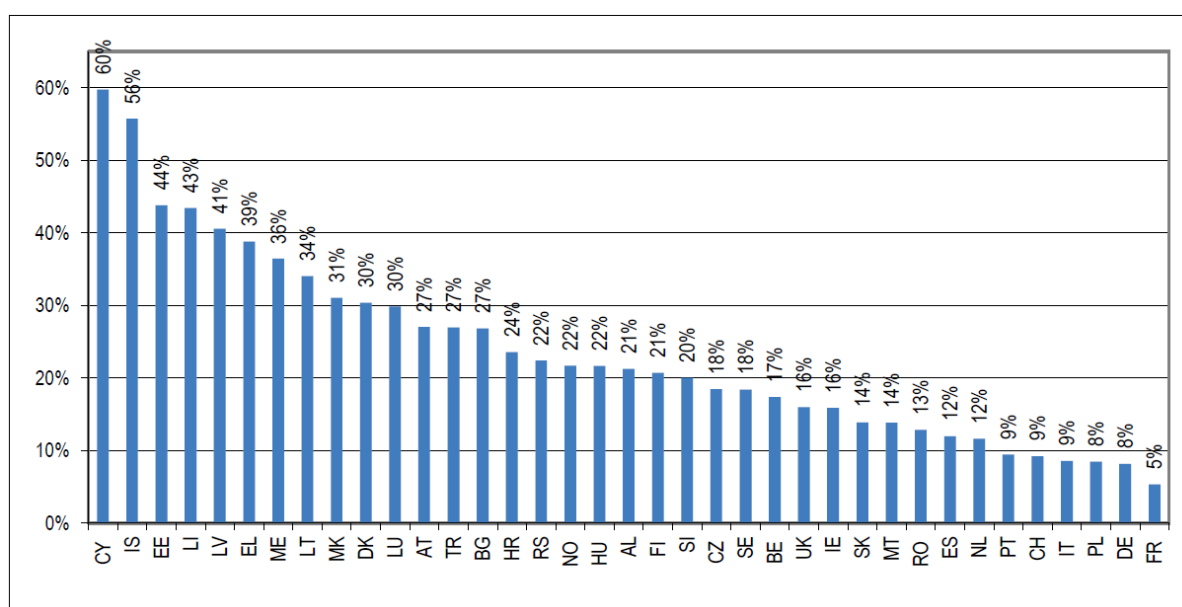
Access A1), as this is the product that Mila’s customers use in most instances, i.e., about [...] % of instances. When that is done, it comes to light that the price difference between areas is 32%.

915. In a Mila email reply, dated 22 September 2020, to a PTA query, dated 7 September 2020, with respect to why the price difference between urban and rural areas for Mila fibre-optic on Market 3a was 17%, and about 67% on Access Option 1 on Market 3b, it was stated that it was only four years since Mila had begun to offer the service to any significant degree and that the service and its distribution were still in continuous development, particularly with respect to distribution and use of investments related to this service. On the other hand, there was a fact that Mila installed ONT at its own cost, regardless of where in the country the service was offered. By the nature of things, it was significantly more expensive to visit customers in the countryside, not least customers on countryside networks that had been deployed in rural areas in connection with the project Iceland Optical Connected. Installation of ONT was part of the bitstream service. This factor weighed heavily in the reasons for A1 service being more expensive in locations other than in the Capital City Area and Akureyri.

916. It was then stated in the above specified reply from Mila, that in connection with the percentage difference between fibre-optic and bitstream in the Capital City Area and Akureyri on the one hand and the countryside on the other, the main reason was that usage of fibre-optic cables was much better than usage of bitstream equipment. In this way, there were many more connections on each GPON installation in the Capital City Area than in the countryside. Most of those who received fibre-optic would start to use it immediately or within a few years.

917. A unique characteristic of Iceland is that a large part of the population lives in the three largest urban areas, as can be seen in the following graph which shows a comparison with other European countries:

Figure 7.15 *Number of residents in the three largest cities as a proportion of total population*¹⁴²



¹⁴² BoR (18) 215BEREC Report Regulatory Accounting in Practice 2018.

918. Furthermore, Iceland has the smallest population density of these countries. Apart from the Capital City Area and Akureyri, communities are sparsely spread, and urban clusters are small. Investment and operational costs for local loop system are much greater in sparsely populated communities than in urban communities. In the opinion of the PTA this price difference in Mila fibre-optic service can be explained first and foremost by varying costs for development and operation of electronic communications networks in these areas, and by less population density and economy of scope, rather than by varying competitive pressure between areas. It however doubtless has an impact on Mila pricing that the Capital City Area and Akureyri and its neighbourhood are also the areas where other electronic communications companies have mainly invested in fibre-optic local loops on market terms, i.e., GR and Tengir. In these areas, Mila is investing in fibre-optic where another fibre-optic system exists, but also uses the Tengir fibre-optic network and smaller countryside networks to provide its bitstream service. It is normal that other electronic communications companies invest first and foremost in the most profitable areas, i.e., in the most densely populated locations.

919. With respect to the difference in unit prices of fibre-optic local loops and bitstream systems between areas on the Mila tariff, it has been stated by Mila, among other things in the company cost analysis, that costs are higher in the countryside. This is among other things, confirmed by Mila in the company's replies, dated 22 September 2020, as stated here above. There is also the fact that all state aid for rollout of fibre-optic networks in the countryside is because of this difference in cost in deploying and operating fibre-optic. It is also clear that the number of spaces/dwellings at each address is significantly more in the most populated parts of the country, as there are more multiple dwelling buildings when compared with smaller urban areas and rural areas. The number of spaces at each address has a significant impact on unit costs. If the cost of investments and operation of fibre-optic local loops and bitstream equipment were analysed for each area in the country, it is likely that there would be a cost difference between areas, which means that the cost difference between areas for Mila, between the two most densely populated areas of the country on the one hand and smaller urban areas and rural areas on the other, can be explained to a large degree or entirely by varying costs. It is then clear that for new parties, that do not have the same economy of scale as Mila, it is normal that they begin by showing an interest in development where population density is at its highest. This means that competition begins where it is most economic to deploy fibre-optic local loops, and thus with the bitstream system - that is where competition begins.

920. The fact that the Mila price for access to fibre-optic local loops and bitstream service over fibre-optic is not the same in the most populated areas of the country and elsewhere in the country furthermore indicates that competitive conditions differ there to some extent. It is however clear that there are convincing cost arguments for collecting differing prices in these areas as has been stated by Mila. In the opinion of the PTA there are no definitive indications that these areas are significantly different with respect to competitive conditions, particularly when one considers that electronic communications companies do not differentiate in price between these areas in retail and similarly, these areas are not exceptional with respect to service offer or quality of connections to any significant degree, as will be explained later.

921. As stated in Section 6.6.5 here above, the monthly price for Mila fibre-optic local loops is lower than the monthly price of Tengir, Snerpa and Orkufjarskipti. The Mila monthly price in the countryside is also similar to the average price on local countryside networks as shown in the table in the above-referenced section. Snerpa fibre-optic local loops are only used for its own bitstream service up to this point in time, so there are no internal sales with that company. In reality one can say that same applies to almost all Mila fibre-optic local loops, i.e., that only

a very small number of Mila local loops are provided without Mila GPON bitstream service. This means that the combined Mila monthly charge for fibre-optic local loops and GPON service (A1) means more to Mila than pricing of a separate local loop as the former is the service that is in most instances delivered to external parties. As previously stated, GR is not offering local loop without access to bitstream service.

922. The Mila local loop price for fibre-optic local loops in the Capital City Area and in Akureyri was ISK 1,417 and October 2013, ISK 1,750 in January 2016 and ISK 1,970 in July 2017, and remained unchanged until the company increased the price on 1 September 2020 to ISK 2,120, and Mila had announced that this increase would be implemented on 1 May 2020 and said that it had been postponed because of COVID-19. With the last increase, the price increased by 7.6% in that area, and from ISK 2,300 to ISK 2,480 in the countryside, which is about 7.9%. Since 2016, there have been several increases in the local loop price of Tengir and GR.

923. One must take into account that Mila PON local loops are generally not sold without bitstream, but the product is rather in the vast majority of cases provided with bitstream, often on Access Option 1 (A1). According to information from Mila, dated 11 December 2020, there were only [...] Mila fibre-optic connections sold without bitstream which represents [...]% of Mila leased local loops, on the basis of the number of local loops leased by the company at the end of June 2020. It is for this reason in the opinion of the PTA, more reasonable to take into account the development of prices of fibre-optic local loops with bitstream (often on A1), and this is the product that customers most often use, as the proportion of P2P local loops of the total Mila local loops is very small, about [...]% at the end of June 2020. As previously stated, access to the local loop without bitstream is realistic in the case of P2P fibre-optic local loops, but not in instances of PON fibre-optic local loops. In the table here below one can see dates for changes to local loop prices where A1 bitstream is included:

Table 7.3. Development of price for Access Option 1 on fibre-optic

Monthly price of Mila's fibre local loops delivered at Access Option 1 (A1)			
Date/Increase of	Greater Reykjavik area and Akureyri	Rural Area	Building Price Index
1 August 2013 - A1	3,105 ISK	3,105 ISK	118.7
1 October 2013 - Local Loop	3,217 ISK	3,217 ISK	118.7
1 January 2016 - Local Loop	3,550 ISK	4,100 ISK	128.2
1 February 2016 - A1	2,950 ISK	3,900 ISK	127.9
1 September 2016 - A1	2,640 ISK	3,900 ISK	131.6
1 June 2017 - Local Loop	2,860 ISK	3,900 ISK	131.6
1 September 2020 - Local Loop and A1	3,080 ISK	4,080 ISK	148.0
Relative increase 1 September 2020			
from 1 August 2013	-0.8%	31.4%	24.7%
from 1 October 2013	-4.3%	26.8%	24.7%
from 1 January 2016	-13.2%	-0.5%	15.4%
from 1 February 2016	-4.2%	-4.4%	15.7%
from 1 September 2016	16.7%	4.6%	12.5%
from 1 June 2017	7.7%	4.6%	12.5%

924. As seen in the table, there were many changes to these prices from 1 January 2016 and up to mid-2017, but the prices remained unchanged from June 2017 until September 2020. In the table, these changes are compared with an increase in the building price index¹⁴³. Then one must bear in mind in this connection that at the end of 2013 leased fibre-optic local loops owned by Mila were only [...], and it was not before the first half of 2017 that Mila leased local loops exceeded [...]. At the end of 2020, Mila leased local loops numbered [...]. In order to examine the development of price with Mila, the PTA considers it appropriate to consider the date where the Mila tariff policy was published at the beginning of 2016, as at that time there were significant changes made to the tariff for, even more so, on 1 July 2017 when changes/adaptation between local loop price and the price for Access Options 1 and 3 took place. If one examines development of the access price from Mila from 1 June 2017 until 1 September 2020, the increases are below the index increase, i.e., the price for local loop in Access Option 1, did not increase at all in over three years and the increase then was 7.7%, while the building price index increased by 12.5%. Prior to that, i.e., in February and September 2016 reductions were made in the tariff, and as stated previously, Mila was commencing its fibre-optic rollout in 2016 and leased local loops were not many initially.

925. The price of Mila copper local loops increased by 11% from 1 July 2017 until 1 June 2019, while the building price index was 11% for the same period. The price for bitstream access in A1 increased at the same time by about 5% and for A3 by about 3%. The price for copper local loops in Access Option 1 is now ISK 2,283 per month and there is thus a considerable difference in price between the company's copper and fibre-optic local loops. The last cost analysis of Mila local loops was completed with the PTA Decision no. 8/2019 and the last cost analysis of Mila bitstream access over copper local loops was completed with the PTA Decision no. 9/2019, dated 16 April 2019. Mila submitted to the PTA an updated cost analysis, which is based on figures from 2020. It is very likely that the conclusion of that analysis will lead to increases in the Mila copper local loop prices and bitstream service over copper local loops and that in the future the difference will shrink significantly between the prices of the above specified technical solutions, among other things because of significantly diminishing usage in the copper network. By the nature of things, increases appear later when a company is subject to obligations for a cost analysed tariff than when pricing is free. What matters most in the opinion of the PTA is that with larger electronic communications companies, there is little difference in retail in prices to consumers, on the basis of whether the connection is over a copper or fibre-optic network. This fact strongly indicates that there is still substitutability between connections over copper and fibre-optic networks.

926. Mila also mentions that the company had only deployed a limited number of fibre-optic local loops outside the Southwest corner of the country and that there had not been a comprehensive fibre-optic rollout but rather a case of investments being made in areas where this was most economic. There was furthermore a significant cost difference in fibre-optic rollout by area and by the number of dwellings at each address. It is stated there by Mila, that there is a cost difference by area, but as has been stated here above, the PTA considers that this is first and foremost the reason for varying pricing by Mila between area, along with economy of scale and less population density, rather than strong competition on the relevant wholesale market and related retail market.

927. In the initial draft analysis, the PTA raised the question of whether the Mila pricing policy in question could constitute predatory pricing by the company, but the PTA made no assertion

¹⁴³ The building price index is used when considering costs for distribution of fibre-optic, as the largest cost is civil works.

on this nor conducted a detailed analysis on this matter. The Mila price increase in 2020, subsequent to the initial draft analysis having been submitted for consultation, in all likelihood lessens this possibility. There will be further discussion on this matter in Sections 10.2 and 11.2, where there is discussion on possible and real competition problems on the relevant markets. One can furthermore refer to Appendix C in this connection.

928. Taking all of the above into account, the PTA considers that pricing by Mila and competitors of the company on the relevant wholesale markets 3a and 3b, do not give reason to geographically segment the market in this country. Though there is some difference in Mila wholesale prices by geographic area, consumers do not perceive such a difference at retail level, regardless of the service provider they use.

7.6.6 Other aspects, including marketing policy, marketing behaviour, the service offer, quality of connections and nature of demand by area

929. Other criteria that NRAs can take into account for the purpose of revealing a possible difference in conditions between areas are for example:

- Possible difference by area in marketing and sales policy.
- Possible difference by area in characteristics and attributes of service, e.g., quality, supply and functionality or usability.
- Nature of demand, which can be local, i.e., bound to one area or a number of areas without covering the whole country.

930. With respect to the relationship between the above specified criteria, one may assume that the greater the variation in competitive conditions between areas, the greater the correlation should be between areas where each criterion is fulfilled. In other words, one could say that where there is a large difference in competitive conditions between areas, then this can be explained by:

- Many market players that have or could possibly enter the market in the area or areas in question.
- A lower market share of the potential SMP operator in the area or areas in question.
- Lower prices of the potential SMP operator and/or of his competitors in the area or areas in question.

931. Marketing policy for retail Internet service must be considered to be homogeneous for the whole country. When the marketing mix elements are examined, and they are product, price, promotion and distribution, this is clearly shown.

- The product is the same across the country, Internet service retailers do not have varying components included in the product depending on where it is sold. Technical quality attributes are also the same or so similar across the country that the general consumer perceives no difference. On fibre-optic local loops the connection is either full quality or no connection. On copper local loops, there can be a difference in quality and the connection depending on the carrying capacity of the copper line in question. But such instances depend on individual copper lines and their length and

are not systematically different from one area of the country to another. ADSL connections are now less than 10% of the number of copper connections in use and less than 3% if one considers connections both over the copper network and the fibre-optic network jointly.

- The price of Internet service in retail is the same, wherever the purchaser lives in the country. No retailer in this country offers differing prices for his service on the basis of some kind of geographic division of the country.
- Advertisements and marketing operations also cover the whole country. There is no evidence of any retailers conducting varying or separate marketing operations in particular areas of the country, such that they are different from those in other areas.
- Distribution of the product depends on where and how the product is sold. Electronic services are delivered through electronic communications connections, regardless of where they are located in the country. There can be a difference in how consumers commence the business relationship and receive installation of the necessary connections and delivery of equipment at their home, depending on where the consumer lives. But such a difference is rather about whether residence is in an urban area or rural and there is nothing that indicates a systematic difference in areas in the country such that one differentiates from the rest.

932. When one considers consumer demand, there is nothing to indicate that it in any differs by geographic area. Internet services are used to fulfil the same or similar needs and wherever the consumer or company is located. The same can be said about other service provided through broadband connections such as IPTV and VoIP.

933. Mila states that there is a difference in service offered by area, as Mila offers 1 Gb/s speed in the competitive areas, but only 500 Mb/s outside them. This is not an entirely true assertion from Mila that the company only offers 1 Gb/s speed in the areas that Mila defines as competitive areas. Mila offers 1 Gb/s speed more widely, e.g., at Snæfellsnes and Skagafjörður. The fact that Mila rather offers 500 Mb/s in the countryside, where the company offers fibre-optic, and not 1Gb/s as in the Capital City Area, does not indicate in the opinion of the PTA that competitive conditions are significantly different between these areas, such that there is reason to segment geographic markets. One cannot see that this difference manifests itself in marketing by the Siminn Group, nor is it the case with other service providers that have access to the Mila fibre-optic network, neither for service over fibre-optic, nor for VDSL on a copper network where 50 Mb/s are generally on offer and widely 100 Mb/s where vectoring is applied.

934. The PTA considers that according to the PTA consumer survey, where most of those who had access to VDSL considered their connection adequate for the needs of the household, that this then applies even more to 500 Mb/s fibre-optic connections. The PTA believes that the general user does not make any significant distinction between 500 Mb/s and 1 Gb/s connections today and that the same will apply during the lifetime of this analysis, regardless of what may come to pass in the future. In this connection, one can mention that many other factors have an impact on consumer experience with respect to performance of network connections, not least capacity of wireless network connections within homes, which is dependent on very many variables, such as other wireless networks in the vicinity and the nature and thickness of partition walls in the premises. It should not be difficult for Mila, and not so costly, to upgrade these connections to 1 Gb/s if and when there is general demand for this.

935. With the above in mind, the PTA does not consider that factors such as marketing policy or marketing behaviour of electronic communications companies, service offer, quality, functionality or usability of connections or the nature of demand are so different between areas in this country that it gives reason to segment the relevant geographic market here. In the section here above, it was described such that consumers perceived no price difference by area for broadband service, though the set-up charge could vary somewhat, but that is a charge that Mila takes and not the service providers, which include Siminn.

7.7 Conclusion with regards to geographic definition of the wholesale market for central access to mass-produced products (Market 3b)

936. As has been stated here above a geographic market covers a geographic area where stakeholder companies participate in supply and/or demand of the relevant goods or services where conditions for competition are the same or sufficiently homogeneous and where it is possible to differentiate the geographic area from neighbouring areas where conditions for competition are significantly different. It is therefore not necessary that competitive conditions are precisely the same in the various areas. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are really “different” that cannot be considered to jointly constitute the same geographic market.

937. *Real* competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications companies, for example in their pricing and service offer, and the impact of this behaviour on the structure of the market, for example market share and network deployment. The task is therefore to find out whether, within a specific country, there is adequate homogeneity between areas such that the country should be considered to be a single market or whether competitive conditions vary significantly between areas such that separate geographic markets should be defined or varying obligations imposed by area.

938. According to the ESA Guidelines on market analysis from 2004, which are now showing their age, the process for geographic definition of markets shall be analogous to the process that applies to definition of product and service markets, among other things regarding assessment of demand and supply substitutability. Instead of assessing substitutability between product or service categories, the task is to assess substitutability between areas. Homogeneity of competitive conditions between areas is therefore examined, among other things with regards to deployment of new electronic communications networks, market share, pricing, service quality, service offer, market behaviour, service characteristics and the nature of demand. In the BEREC Common Position on geographic analysis from 2014, one can find more detailed guidelines for the geographic analysis. In a new document from BEREC from 2018 it was then confirmed that guidelines in the above specified BEREC Common Position from 2014 were fully in force.

939. With respect to assessment of substitutability, the PTA comes to the same conclusion as in its last decision on the market in question, see PTA Decision no. 21/2014. Among other things, there was discussion there about assessment of substitutability on the basis of an SSNIP test. It was stated that it would be fair to say that it was very unlikely that a sufficient number of consumers would decide to move to a new house to another market area because of a 5-10% price increase, on its own. It was also unlikely that other network operators would embark on establishing their own network subsequent to such a price rise on its own. The SSNIP test could thus lead to many and small markets and would thus neither be realistic nor useful in the

circumstances that pertained on the relevant market in this country. Strictly speaking, deployment of new electronic communications networks could mean that assessment of substitutability indicated that there were many geographic markets. On the other hand, the fact that the Mila network (copper and fibre-optic) almost covers the whole country, contradicted such a conclusion. It was therefore necessary to emphasise competitive conditions and to investigate whether they were sufficiently homogeneous over the whole country.

940. In the above PTA Decision no. 21/2014, the Administration came to the conclusion that there were no arguments for applying geographic measures on the market in question, as competitive conditions were not sufficiently heterogeneous between areas, and in addition to this, the boundaries between deployment of fixed line access networks were unclear. This meant that clear and stable boundaries between the geographic areas in question could not be found. The distribution of new access networks was unpredictable and random in some instances. The Mila copper local loop network covers the whole country while other access networks were local and much smaller than the Mila network. Wholesale of the Mila copper local loop network was on offer across the whole country at the same price, subject to a prior obligation on Mila to this effect. Pricing on the market strongly indicated that this was one geographic market, and in addition to this there was no difference in quality of connections by area. The jurisdiction of the Electronic Communications Act was the whole country and authorisation for companies to operate networks provided at a fixed location covered the whole country and was based in all instances on the same laws and regulations. In addition to having a dominant position in those areas where there was little or no competition, Mila, in the opinion of the PTA, still had a very strong position in those areas where another network was also on offer. The conclusion was in accordance with practice in Europe where only the United Kingdom, Hungary and Finland had segmented the market in question geographically.

941. In the above specified ESA Guidelines and those of BEREC, it is stated that in order to avoid a huge number of small markets, it could be useful to group in separate units, those areas where comparable competitive conditions pertained, often such that one area comprised areas with more competition and the other comprised areas where there was little or no competition. Competitive conditions between the areas in question were then further analysed with regards to whether it was justifiable to apply geographic measures, i.e., whether to segment geographic market, or to apply varying obligations by area.

942. It is clear that a substantial deployment of fibre-optic networks to households and companies has taken place in this country since the last analysis. GR and Tengir have continued their deployment in their own operational territories and in addition to this, Mila commenced vigorous deployment of this nature a few years ago. A large number of fibre-optic networks have been deployed in the countryside by various municipalities, often with state aid. The situation now is that about 83% of the population had the option of such connections at the end of 2020 apart from the Mila copper network which covers almost the whole country and reaches 86% of the country's homes and companies. It is likely that this development will continue during the lifetime of this analysis. Mila fibre-optic local loops reached at least 47% of households and companies of about 163,000 spaces at end of year 2020. The company plans allow for continued vigorous fibre-optic rollout in the coming years. At the end of 2020, GR fibre-optic local loops reached 67% of homes and companies and the company projects continuing development in its operational territory in the coming years, despite this being less rapid than in recent years. The company expects that the company's fibre-optic local loops will be [...] at the end of 2023. The Tengir network reached 9,500 households and companies at the end of 2020 and the company projects that they will be just under [...] at the end of 2023. At

the end of 2020, Snerpa had deployed fibre-optic to just under 1,200 spaces in the West Fjords, and the company expects them to have become [...] at the end of 2023. At the end of 2020, Austurljós had deployed 200-300 fibre-optic local loops at Egilsstaðir and the company projects modest expansion of the system in the coming years. Early 2021, Austurljós started to offer bitstream service over the company's fibre-optic network, and up to that point in time, the company had only provided access to this in Market 3a, and Vodafone had provided bitstream service on that network.

943. In addition to this, municipalities have deployed some thousands of fibre-optic local loops to the more sparsely populated communities in recent years, often with staid aid from government through the Telecommunications Fund project, Iceland Optical Connected, and it is expected that this development will continue until the end of 2022, and even into 2023, and that more than 6,000 fibre-optic local loops will have been deployed in connection with that project. On the other hand, Mila has been deploying such networks with the help of state aid, purchasing such networks or leasing long-term to a significant degree, and it is predicted that this development will continue throughout the lifetime of this analysis. In addition to this there is less likelihood that competition problems will result from such networks, as they are subject to obligations, among other things on access according to regulations on state aid. According to the above, one may assume that more than 90% of households and companies in the country will have the option of a fibre-optic connection towards the end of the lifetime of this market analysis. Fibre-optic networks of parties other than Mila reached about 74% of the country's homes and companies at the end of 2020 and the PTA expects that this proportion will have reached [...] % at the end of 2023, if one allows for an increase in spaces of about 3,000 per annum and they will then be 172,000, whereas today they are just over 163,000.

944. In the above specified BEREC Common Position from 2014, it is stated that when selecting areas for analysis, the selected areas need to fulfil specific criteria, among other things to be smaller than the country as a whole and that they are mutually exclusive with regards to competitive conditions, that the boundaries are clear and stable and that they are sufficiently small for it to be unlikely that competitive conditions will significantly change within them, but sufficiently large to prevent an excessive burden on market players and NRAs. The advantages and disadvantages of the applicable methodologies should be analysed when segmenting into areas. The methodology should be chosen as the best fit with the above specified conditions.

945. Historically, geographic markets have in almost all cases been according to the distribution of the electronic communications network of the former monopolist incumbents in Europe. For a long time, the main principle was that there was only one such party who controlled a nationwide fixed line network in each state. For this reason, it had been the conclusion of the vast majority of market analyses of NRAs in the EEA that the whole country was considered to be one geographic market. This has however changed in recent months and years in quite a number of European states, and then on Market 3b rather than on Market 3a. In later years, geographic analysis of markets has become more important and at the same time more complex than before, among other things where new network operators and bitstream operators have entered the market in competition with the former incumbent monopolist.

946. In the above specified BEREC Report from December 2014 there are among other things, explanations of the criteria that NRAs have used when geographic analyses are conducted, and areas selected. It was stated that there was normally a large number of areas identified on the basis of specific conditions which were then categorised into two or more units where competitive conditions were largely comparable within each unit. These criteria in the initial

stages of geographic analysis had first and foremost been based on indications on market structure, e.g., deployment of competitors' networks and market share at retail level. More emphasis was placed on behaviour of market players, e.g., pricing, later in the process when an assessment is made of whether competitive conditions are sufficiently heterogeneous between the selected areas to justify geographic measures.

947. In the report it is also stated, in discussion on selection of appropriate areas that a large majority of NRAs had used administrative units, e.g., municipalities or postcodes, rather than the network topology of the former incumbent monopolist and as appropriate of their competitors as well. The reason why administrative units were chosen was among other things, that they were considered to be clearly delineated and stable and that such units were generally small enough to ensure homogeneity and were sufficiently large for it to be able to analyse competitive conditions in an effective manner without imposing an excessive workload on parties to the market, or on the relevant NRA. Excessive analysis could be extremely time-consuming and not justifiable unless there was major uncertainty about the result.

948. It was also stated that after having analysed the geographic areas, the next step was normally to group those areas with similar competitive conditions. The areas were generally grouped into areas where on the one hand there was significant or some competition and on the other hand, areas where there was less or even no competition. Varying criteria could be used for such grouping. On Market 3b the most common criteria used were that a specific number of competitors of the dominant operator had begun to deploy their own infrastructure above a specific level (generally 50-75% deployment by more than one competitor) and that the market share of the dominant operator had fallen below a specific level at retail (generally 40% or 50%), and that there was a specific number of significant competitors (generally they needed 10-15% market share to be deemed significant competitors).

949. Finally, it was stated in the BEREC document in question that most NRAs had taken account of expected future developments in deployment and market share.

950. Taking the above into account, one must therefore find sensible and usable criteria for the selection of geographic areas that will be examined, before it becomes possible to assess whether the areas are segmentable with respect to potentially significant variations in competitive conditions between them. There are however examples in Europe where the fact that areas had been segmented into more than one group for analysis had not changed anything with respect to designation of a party with SMP (in a case of geographic segmentation) nor led to imposition of varying obligations on completion of detailed geographic analysis.

951. Instead of embarking on a detailed and time-consuming assessment of competitive conditions in each municipality in the country, and they are 69, the PTA considers it to be a more useful and appropriate method to define clear criteria on how to group the areas, i.e., on the one hand into areas with little or no competition and on the other hand into areas with more competition. Given the situation in this country, the PTA considers it important to base such grouping on more than one criterion. In accordance with the above specified BEREC document, the PTA considers that it should not matter whether the area in question is the operational territory of GR or of Tengir for it to be possible to group them together, if competitive conditions are homogeneous between the municipalities in question.

952. In the opinion of the PTA, municipalities are the most appropriate units to use in geographic analysis, given the structure of the market in question here in this country and other competitive conditions on it. It is clear that fibre-optic development within many municipalities

is considerably more than was the case in the last analysis of the relevant market and municipality boundaries are thus now much clearer and more stable with regards to geographic analysis and therefore usable for selection of areas for geographic analysis. In the opinion of the PTA, they are also suitably large for it to be likely that the situation within them will not fundamentally change in the lifetime of the analysis and not so small that they impose an excessive burden on market players, or on the PTA, during market analysis.

953. Discernible boundaries based on deployment and topology of the network of the potential SMP operator, having taken appropriate account of the deployment of networks of competitors of such a party, seem to be in rapid decline in this country and in Europe. The deployment of fibre-optic networks of Mila's competitors does not depend on Mila network topology. For some considerable time, the GR distribution area was in step with the OR distribution area but in recent times it has extended to a number of locations in Southwest Iceland. The Tengir operational territory was for a long time, Akureyri and Eyjafjörður but has moved to more areas in Northeast Iceland and West to Húnavatnssýslur. The GR and Tengir networks therefore now reach quite a number of municipalities. For this reason, the PTA does not think it is right to use as a boundary, the network topology of Mila or its competitors in this country, but the municipalities certainly reflect development of Mila competitors' electronic communications networks, though the situation in this respect may vary within them.

954. The PTA also examined whether postcodes could also be suitable for geographic analysis. That examination revealed that some postcodes cover a very wide area while other postcodes are very small. There is also the fact that some postcodes in the countryside cover more than one municipality while in other municipalities there are many postcodes. The PTA explained more drawbacks to postcodes in Section 7.4 here above and reference is made to that.

955. As stated above, it was stated in BEREC documents that generally there needed to be more than one bitstream system operated by a competitor of the SMP operator for it to be possible to consider that effective competition, or at least significant competition, could exist on the relevant market. In Iceland, it is generally the case that there is only one bitstream system operated by one Mila's competitor in each area and it is assumed that this situation will not change during the lifetime of this analysis. Large and rather sparsely populated areas enjoy however, no such competition. To divide the areas into units with little or no competition on the one hand and units with more competition on the other hand, and thus normal in the opinion of the PTA in the light of conditions in this country today, to subject such division to rather strict criteria, among other things to allow for significant deployment of bitstream systems of Mila competitors, as there is generally only one such network where they operate.

956. Having taken the above into account, the PTA plans to define areas as having more competition where the following two conditions are fulfilled in the municipality in question.

- That there is a fibre-optic network with a layer 2 bitstream system that competes with Mila in the relevant area, which has distribution to at least 75% of households and companies.
- That the Siminn market share on the retail market for broadband service is under 50%.

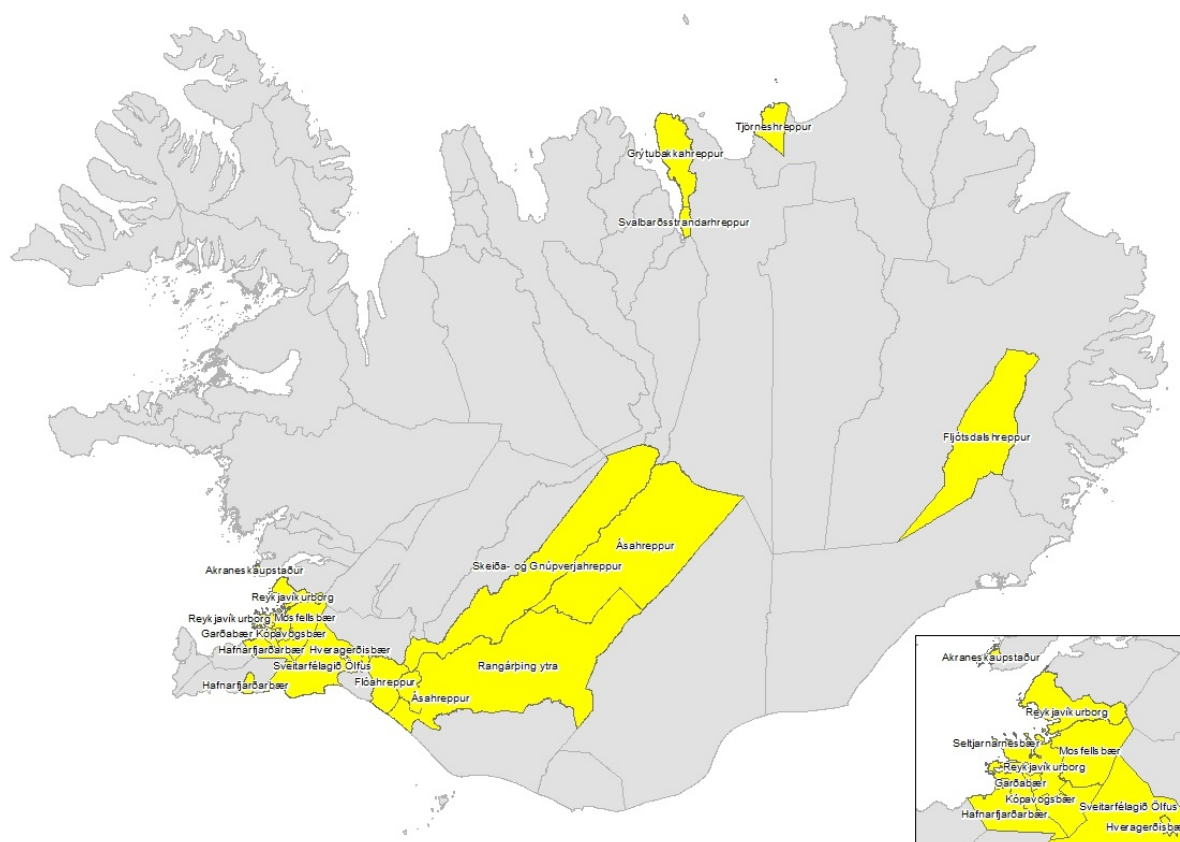
957. The PTA has analysed distribution of networks and bitstream systems by municipality and by retail share of service providers as has been stated here above.

958. When these two aspects are aggregated it transpires that the following 17 municipalities fulfil both criteria:

- The City of Reykjavík
- Kópavogsbær
- Seltjarnarnesbær
- Garðabær
- Hafnarfjarðarkaupstaður
- Mosfellsbær
- Akraneskaupstaður
- Svalbarðsstrandarhreppur
- Grýtubakkahreppur
- Tjörneshreppur
- Hveragerðisbær
- Sveitarfélagið Ölfus
- Flóahreppur
- Ásahreppur
- Fljótsdalshreppur
- Rangárþing Ytra
- Skeiða- and Gnúpverjahreppur

959. This means that 25% of the country's municipalities belong to the area where more competition pertains and thus where lighter obligations will apply, and about 70% of the country's population lives in these municipalities. The PTA will then annually update the list accompanying the decision, next early in 2022 with the status as of end of year 2021.

Figure 7.16 Areas where the conditions are fulfilled



Source: Post and Telecom Administration

960. The Mila position is very strong in areas outside these 17 municipalities, i.e., generally from over 50% up to 100% market share in bitstream service in the municipality. The Mila position is furthermore quite varied within these 17 municipalities, from [...] % up to over [...] % in Reykjavík. In Reykjavík, Mila market share is for example [...] %. It is also worthy of note that Mila market share of the wholesale market for bitstream service is approximately [...] % in the whole of GR operational territory and [...] % in Tengir operational territory. Over the whole country, the Mila market share is 57% of the market in question.

961. As has been stated here above in Section 7.5, geographic analysis shall contain an analysis of competitive conditions on related retail markets with regards to geographic aspects. It is also necessary to keep in mind how competitive conditions would be on the relevant retail market if there were no wholesale obligations in place (modified greenfield approach).

962. In that discussion it was stated among other things that the NRAs in Europe had generally defined markets Market 3a and Market 3b (particularly Market 3a) as the country as a whole, despite having identified some difference in competitive conditions on related retail markets.

963. There it was also stated that the retail market in question, comprised only copper-, cable- and fibre-optic connections which gave service providers the option of providing consumers with Internet and other related services, which was delivered over bitstream, that is to say IPTV and VoIP.

964. Furthermore, it was the PTA conclusion that it was perfectly clear that effective competition did not exist on the retail market in question, despite the obligations resting on Mila, pursuant to the PTA Decision no. 21/2014 on wholesale markets for local loops and bitstream access and that the situation on the retail markets in question would doubtless be worse were it not for the wholesale obligations in question. Reference was then made to the fact that market analyses in the EEA had generally shown that on retail markets for standard broadband connections there would be a lack of competition if obligations on the underlying wholesale markets (one or both), particularly in states where there is only one network with national coverage, were not in place.

965. Reference was made to the strong position of Siminn on the retail market in question, where the company share had remained reasonably stable since the last analysis. It was 46% at end of year 2020. The PTA considers among other things that the Siminn broadcasting rights for English football for the years 2019-2025 had strengthened the Siminn position. The success of Heimilispakkinn, which was launched in October 2015, and which includes among other things the Sjónvarp Símans Premium content provider, is also doubtless one of the reasons. Siminn share in bundles (Heimilispakkinn) was also dominant.

966. It was furthermore stated that Siminn provided retail service across the whole country as the former monopolist incumbent in electronic communications and enjoyed ubiquity. The number of competitors to the company varied somewhat by geographic area but significant competitors such as Vodafone, Nova and Hringdu provided retail service in all the most populated areas, and this was possible in the countryside among other things through access to Mila's Access Option 3.

967. The Siminn market share was over 46% at national level but it differed somewhat by area, i.e. from [...] % in Seltjarnarnes and up to dominance in various areas in the countryside. In the Capital City Area it was approximately [...] %, about [...] % in the whole of GR operational territory and about [...] % in Tengir operational territory.

968. It was also stated in the above referenced Section 7.5 that it was not possible to discern any difference by geographic area between the Siminn pricing policy and those of its competitors at retail level. This was also the case with respect to quality of connections, service offer, marketing policy and the nature of demand. It was therefore the conclusion of the PTA that there was no significant difference in competitive conditions on the retail market for broadband service in this country by geographic area and that the geographic market is therefore the whole country.

969. After having discussed geographic analysis, in general, explained the PTA Decision no. 21/2014, described the situation at retail level, network distribution and deployment plans and selected areas for more detailed geographic analysis, the Administration had in Section 7.6 conducted a detailed assessment of homogeneity in competitive conditions in selected areas.

970. The first aspect examined by the PTA was whether there was a possible variation in entry barriers between areas. It was stated in Section 7.6.2 that one could assume that in this country, entry barriers were greater in expansive and sparsely populated areas than in the more densely populated areas, as became the reality with the deployment of the GR fibre-optic network and bitstream system in Southwest Iceland and that of Tengir in Northeast Iceland. One could therefore conclude that access barriers for new entries to the market in question were significantly greater in rural areas than urban, both with regards to fewer possibilities to leverage economy of scale in developing networks and bitstream systems and also with regards

to costs for trunk line connections to provide service across the area. It was however necessary to note that fibre-optic had been rolled out in the least populated areas by many municipalities, often with state aid. Mila had however been purchasing and leasing a large number of such local networks in recent times and one could expect this development to continue. Mila also offered bitstream service on almost all of them. Mila and GR on the one hand and Mila and Tengir on the other had also however embarked recently on joint deployment of fibre-optic networks in a number of municipalities and expect that such cooperation could continue and thus lower investment costs, which in turn would lower entry barriers. In addition to this one could mention that a stricter and more transparent obligation on access to the company's existing ducts could reduce investment costs for competitors, thus lessening entry barriers, particularly in the countryside where Mila faced no competition today.

971. The next aspect examined by the PTA was the number of significant competitors to Mila by geographic area, in Section 7.6.3. There it was stated that a simpler and often more effective method, which could also reflect entry barriers by area, was to examine the number of competitors of the SMP operator that provide or can provide service in the relevant area or areas. It was easier to demonstrate this than to conduct the assessment of entry barriers by area, and this method furthermore shows how entry barriers really work in practice. On Market 3b, there were those players that operated their own bitstream system over copper or fibre-optic networks in the various areas in this country. Competitive conditions could also vary by area as a result of the size of such competitors, no less than as a result of their number.

972. Then it was also stated that it would be unlikely that consumers and companies in this country would have the choice of more than two options for access networks at a fixed location and one could assume that in many sparsely populated and wide-reaching areas in the countryside it was not unlikely that there would only be one option. The PTA conclusion was that it was mainly GR in Southwest Iceland and Tengir in Northeast Iceland that could be considered significant competitors to Mila on the market in question. As previously stated, it is however likely that the GR and Tengir fibre-optic networks will reach about [...] % of the country's households and companies during the lifetime of this analysis, and therefore it is clear that a large majority of citizens and companies will enjoy options in this regard. These networks reached about 74% of the country's homes and companies at the end of 2020.

973. The third aspect examined by the PTA was market share in wholesale and retail by geographic area, in Section 7.6.4. There it was stated among other things, that one method to take into account size and strength of competitors of the Siminn Group in geographic analysis was to examine market share of the players in the geographic areas in question, both at wholesale and retail level. It would be ideal if not only market share at a given point of time was shown, but also its development over time in order to make it possible to identify certain trends in this connection. Should indications emerge of significant changes in market share through points in time, then this could be indicative of varying competitive conditions by area. It was furthermore important that NRAs endeavoured to assess potential future development of market shares during the lifetime of the analysis.

974. In the section in question, it was also stated that the PTA had collected information on retail and wholesale departments and on deployment of networks by municipality as the situation was on 30 June 2018, 31 December 2018, 30 June 2019, 31 December 2019 and 31 December 2020.

975. The conclusion in Section 7.6.4 was that there was some difference in Siminn retail market share by municipality. At the end of 2020, Siminn had over 46% market share at a

national level. At the same time the share had ranged from [...] % to being very high. Siminn does not have less than 40 % share in the countryside in any populous municipality, but only in municipalities with very few inhabitants that only have a number of tens of connections. In the Capital City Area the Siminn share was about [...] % while it was common that it stood at 60-70 % in many places in the countryside. It was a similar story with the Mila market share, though the lower margins are generally higher than with Siminn in retail, with the exception of very small municipalities in the Tengir operating territory. The market shares of Mila and GR in wholesale of bitstream service were however almost equal in the GR operational territory at this point in time where Mila has [...] % of the wholesale market for bitstream lease against [...] % share for GR. Siminn has more than 40 % market share in 57 municipalities of 69 and over 50 % in 48 municipalities.

976. Market shares have not changed significantly at the above specified points in time at retail or wholesale level. PTA does not expect significant changes to take place in this respect during the lifetime of the analysis. In July 2020, Siminn and GR agreed on Siminn's bitstream access to GR's fibre-optic network. On 25 August 2021, Siminn began to provide its services via the GR network. The agreement states that at least [...] % of Siminn's customers will be on GR's network within [...] years, i.e., [...] customers compared to Siminn's current customer group. Based on information obtained by the PTA, it is likely that Siminn's customers on GR's network will be around [...] by the end of 2022. It can be assumed that those customers will consist of both Siminn's customers who have been on the Mila network as well as from customers who have been on the GR network but have been customers of Siminn's competitors. The PTA expects that this proportion will be [...] until throughout 2021, but after that they will be [...] % from the first group and [...] % from the second group. It can therefore be expected that Siminn will significantly strengthen its position in GR's operating area throughout the lifetime of this analysis, especially in Seltjarnarnes and Reykjavík, where Siminn's market share was somewhat lower at the end of 2020 than elsewhere in the capital area or in the GR area as a whole. Siminn's market share was [...] % in Seltjarnarnes and [...] % in Reykjavík at that time, while it was [...] % elsewhere in the Capital City area and up to over [...] % in some places in the GR area. On average, Siminn's market share was around [...] % in the entire GR area. The PTA assumes that Siminn's market share will have reached about [...] % by the end of 2020 in the GR area, of which about [...] % in both Reykjavík and Seltjarnarnes, all other things being equal.

977. One can therefore expect the Mila market share to decline somewhat, but in the opinion of the PTA, it will in all likelihood still be well over 50 % on the relevant market at the end of the lifetime of the analysis, probably something in the range of 50-55 %. This takes among other things into account that a number of Siminn customers will move from the Mila systems to the GR system as a result of the above-specified agreement between GR and Siminn, though Siminn will without doubt also gain a significant number of customers of its competitors that are already on the GR system. The decommissioning of the PSTN voice telephony service and the first steps in the Mila 10-year plan for decommissioning the company's copper network could have a small impact during the lifetime of the analysis such that the Mila share would decline. Given the modest distribution plans of electronic communications infrastructure companies apart from Mila and Mila's ambitious distribution plans for the coming years, the PTA considers that the decline in Mila share on the relevant market will decelerate during the lifetime of the analysis when compared with the last 7 years, which was a period when GR among other things, conducted rapid fibre-optic development which now appears to be much less rapid and will probably be that way in the coming years. It could, however, significantly

change the landscape of the relevant market, to Mila's advantage, if service providers such as Vodafone and Hringdu were to increasingly switch from the GR network to the Mila network.

978. The fourth aspect examined by the PTA was assessment of homogeneity of market conditions by area with respect to pricing and pricing policy of electronic communications companies in wholesale and retail by geographic area, see Section 7.6.5. Another important criterion when identifying whether competitive conditions might be variable between areas is the possible price difference between them at both retail level and wholesale level. If pricing of the potential SMP operator and pricing of his competitors were the same or similar across the whole country, i.e., not significantly variable between areas within the companies in question, this could provide indications that competitive conditions were not sufficiently heterogeneous between areas to justify segmented geographic markets or varying obligations by area. It even further supported this position if pricing between the parties in question in the various areas were the same or comparable.

979. It was furthermore stated that it was important to examine pricing and possible price differences, both at wholesale and retail level. In the opinion of the PTA, pricing at retail level had no less weighting than pricing at wholesale level in this assessment, as it was that price that the consumers experienced and that travelled all the way up the value chain. If consumers could purchase relatively inexpensive service in areas with more competition, while prices were significantly higher in areas with less competition, this could indicate variations in competitive conditions between areas.

980. At retail level, it is not possible to identify any price difference by area with Siminn. The same can be said about competitors of the Siminn Group. Then there is no significant price difference between the Siminn Group and its competitors at national level nor in specific areas. This strongly indicates that in this country there is no significant variation in competitive pressure between areas that could be considered substantial or meaningful.

981. Mila has however pointed out that in the GR operational territory, the set-up of Mila household connections for fibre-optic local loops is without charge, but elsewhere it is at the expense of users. This appears to be the only price difference that users experience between areas. In the opinion of the PTA, it is not a tipping point with respect to whether the wholesale market in question should be defined geographically or not, that Mila on-site service is less expensive in the immediate environment of the company's operational sites, when the service market is the whole country. This is a one-off cost and a large part of increased cost in the countryside is per diem and other additional costs for travelling in the countryside, where distances are important. There are therefore clearly cost considerations that apply in this instance.

982. In addition to this, the PTA considers that this one-off cost is not high in the light of the fact that the average lifetime of the contractual relationship is likely to be counted in years rather than months. PTA sister institutions have in some instances come to the conclusion that such average lifetime is 60 months. It could easily be longer than that when it relates to the underlying carrying layer, than when switching service provider on the same carrying layer. The consumer survey that the PTA commissioned in the autumn of 2020 also indicates that Siminn customers are less likely to switch service provider than customers of other service providers.

983. At wholesale level, it is not possible to detect significantly differing prices between Mila, GR and Tengir on the market in question. There is more variation, though not significant, in

the prices of the small local players that have enjoyed state aid for their fibre-optic development. In the wider picture, those prices are of little importance, and in addition to this, Mila has been deploying such networks with state aid, purchasing many of them or leasing them long-term and it is expected that this development will continue during the lifetime of this analysis. According to the rules on state aid in electronic communications, those networks shall offer open access on the relevant market and base their prices on benchmarking. For this reason, the PTA considers that direct competition problems resulting from the presence of the networks in question do not exist or that they are at least minor.

984. Mila wholesale price on copper networks on the relevant market are uniform across the country, all subsequent to PTA price control, which was imposed with the PTA Decision no. 21/2014. On the other hand, the Mila wholesale prices for fibre-optic on the relevant market vary to, a small degree between urban and rural areas, about 17% on Market 3a and 67% on Access Option 1 and 48% on Access Option 3 on Market 3b, but there is no obligation in force there on price control. It is likely that it would also be the conclusion with respect to copper with Mila if the above specified price control was not in place. One must take into account that Mila PON local loops are generally not sold without bitstream (GPON), but the product is rather in the vast majority of cases provided with bitstream, often on Access Option 1 (A1). It is therefore in the opinion of the PTA more reasonable to take into account development of the price of local loops with bitstream (most often in Access A1), as this is the product that Mila's customers use in most instances, i.e., about [...] % of instances. The price difference is 32.5% in the case of fibre-optic local loops with A1.

985. As stated here above in Section 7.6.5, it is the opinion of the PTA that the Mila price difference in question is explained by varying underlying costs, among other things because of varying deployment costs, varying population density of communities and because of varying economy of scope between urban and rural areas, rather than by varying competitive pressure between these areas.

986. It should be noted that if prices are variable between areas, this does not necessarily mean that the market should be automatically segmented geographically in accordance with such price difference of the potential SMP operator. The problem with such an approach was that the potential SMP operator could then have a direct impact on geographic definition of the relevant market as price control was not in place, including segmentation of areas, and/or price difference could change at any particular time in accordance with his pricing policy. It would therefore be more appropriate to investigate the underlying reasons for the variations in pricing.

987. In the market analysis conducted by the Swedish NRA, PTS, from the autumn of 2019, on which the EU Commission exercised its veto in February 2020 and which was presented here above in Section 5 and in more detail in Appendix A-1, it was among other things stated that local networks in the country had had the tendency to price wholesale access according to cost and only to a limited degree by taking account of the pricing of the SMP operator in that country, Telia. The prices of local networks in instances of connections to multi-unit dwellings were anything from SEK 500 to SEK 4,000, while to single-unit dwellings they ranged from SEK 140 to SEK 220. The PTS had considered that this difference was based rather on housing density and varying deployment costs than on competitive conditions between areas. The EU Commission made no comment on the latter issue but came to the conclusion that the PTS had not succeeded in demonstrating that the prices of local networks were comparable to Telia prices. On the contrary, PTS had identified a difference between wholesale prices of the various local networks. With this in mind, the Commission issued an opinion to the effect that there was insufficient homogeneity in access prices on the relevant market for fibre-optic in Sweden.

988. In the opinion of the PTA, it is clear that the price difference between Telia and local networks in Sweden is much greater than is normally the case between Mila and local networks in this country, and in addition to this the importance of local networks is considerably less in this country than in Sweden. Only a few percent of households and companies in this country used such underlying networks against tens of percentage points in Sweden. The Telia market share in Sweden is only 37% national level, while the Mila share is 57% in this country when one considers copper and fibre-optic local loops. This case is therefore in no way comparable in the opinion of the PTA. If one only considers local loops over fibre-optic, Mila had 32% market share at the end of 2020, while this market share was almost none in 2015. Siminn is also the largest provider of broadband service over fibre-optic local loops in the country. The PTA considers that this development will continue throughout the lifetime of the analysis and that the market share of Mila and Siminn of service over fibre-optic local loops will rapidly increase throughout this lifetime.

989. Finally, in Section 7.6.6 here above, the PTA discusses aspects that could potentially indicate variations in competitive conditions between areas other than those already covered. They included factors such as marketing policy, market behaviour, service offer, quality of connections and nature of demand. In short, the PTA found almost no geographic variation in the above specified aspects with Mila and nor with the company's significant competitors.

990. As previously stated, is not necessary that competitive conditions are precisely the same in the various areas for the country to be considered a single geographic market. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competitive conditions are "really" different that cannot be considered to jointly constitute the same geographic market. *Real* competitive conditions shall be assessed that are reflected in the market behaviour of electronic communications companies, for example in their pricing and service offer, and the impact of this behaviour on the structure of the market, for example market share and network deployment.

991. With all the above in mind the PTA considers there to be no reason to segment varying geographic markets in this country, i.e., on the one hand the 17 municipalities selected above for further analysis and on the other hand the other municipalities in the country. Competitive conditions are not sufficiently heterogeneous between these areas for this to be necessary. Though there is a certain difference in market structure between the two areas in question, among other things with regards to deployment of the fibre-optic networks of Mila competitors and with regards the market share, this difference is not reflected in behaviour of the Siminn Group or of competitors between these areas in a sufficiently clear manner and is furthermore thus not passed on to consumers in the form of variations in price, quality, service offer and other aspects that should affect consumers if competitive conditions varied significantly between areas. The competitive pressure faced by Mila is thus not sufficiently different between these two areas on the relevant market, to be considered significant.

992. In the following sections, 10.6 and 11.6 here below, there will be discussion on whether there are nevertheless, sufficient variations in competitive conditions between these two areas to justify the imposition of varying obligations on Mila in the areas in question on the relevant wholesale markets.

8 Analysis of SMP on the wholesale market for local access with fixed connection (Market 3a)

8.1 Introduction

993. When the relevant service market and geographic market had been defined, the next step is to analyse competition with regard to those factors that influence market power, and to find out whether the power of one or more undertakings is significant such that the undertaking or undertakings be designated as having SMP and that appropriate obligations are imposed on it or them in order to endeavour to solve identified competition problems on the market in question. The factors that are used to measure market power depend on the characteristics of each market and it is in the hands of the relevant NRAs to evaluate which factors shall be examined in each instance. In the ESA Guidelines on market analysis¹⁴⁴ there is a list of the criteria that can be used when assessing SMP and the criteria that the PTA considers important for this market analysis will be discussed here below. The list published in the guidelines is not exhaustive and the PTA is authorised to add other criteria to the list that could apply.

994. In the PTA analysis which was published with the PTA Decision no. 21/2014 on 13 August 2014, the analysis of the market was revised from the previous analysis from 2007¹⁴⁵ and the market is now defined as technology neutral in accordance with the ESA definition from 2008, where previously the market was mostly limited to copper local loops which were entirely the property of Mila. In the analysis here under discussion, the PTA applies the market as it was defined in the ESA Recommendation on relevant markets from 2016, i.e., Market 3a. Very substantial increase in fibre-optic local loops in this country during recent years means that when assessing market power of the party in question, one has to take into consideration development in fixed line access networks.

995. The market here being examined is the wholesale market for local access with fixed line connection. In Section 3, the retail market connected to the local loop market was covered and it is necessary to understand how these markets are connected and how circumstances on the retail market impact the wholesale market.

996. As is stated in Section 6.7 here above, the wholesale market for local access at a fixed location, which is here under discussion is defined as one geographic market and this analysis takes this conclusion into account.

997. The main companies involved in development and operation of fixed line access networks are Mila,¹⁴⁶ GR¹⁴⁷ and Tengir.¹⁴⁸ In addition to this there are small local fibre-optic access networks spread widely across the country and that have insignificant weighting in the total number of local loops as of now, but one can expect a sizeable increase in the number of

¹⁴⁴ See Chapter 3.1 in the Guidelines.

¹⁴⁵ Market analysis published on 21 December 2007, see PTA Decision no. 26/2007.

¹⁴⁶ Mila is a 100% subsidiary of Siminn and together they belong to the Siminn Group, which is the country's largest electronic communications company. In the PTA discussion reference is variously made to Mila, Siminn or Siminn Group, depending on which is considered to be the most descriptive on the basis of the fact that the companies are one economic unit in the understanding of competition law. The division of tasks between Mila and Siminn is delineated among other things, by the Siminn Settlement with the Competition Authority in 2013 as amended in the year 2015.

¹⁴⁷ Gagnaveita Reykjavíkur (GR) is fully owned by Orkuveita Reykjavíkur (OR).

¹⁴⁸ Tengir is owned by a company comprising management and related parties (G&B ehf.) and Norðurorka hf.

users connected to these networks in the coming years. There one could mention fibre-optic networks of Snerpa in the West Fjords and of Austurljós at Egilsstaðir and surrounding areas in East Iceland, apart from the very many local countryside networks that have mostly been deployed by the municipalities in question in the most rural areas, with state aid. Mila has however recently been deploying with state aid, purchasing or leasing long-term many such local countryside networks¹⁴⁹, and in addition to this the company is involved to some extent in operating or providing bitstream over more such networks.

998. The Mila access network is mostly based on a copper local loop network that has close to national coverage, but in recent years the company has also deployed fibre-optic local loops to a significant extent in the Capital City Area and more widely in the Southwest corner of the country, and also to some extent in the countryside, and has in addition to this deployed fibre-optic networks in rural areas with state aid, or has purchased or leased long-term such networks, and has provided local loop service for various small local fibre-optic networks over which Mila provides service.

999. GR only operates fibre-optic local loops in the Southwest part of the country which it pairs with the company's selling of products on the wholesale market for central access provided at a fixed location for mass-market products, i.e., market 3b (self-supply). Tengir has developed a network in Akureyri and surrounding areas and widely in North Iceland in recent years, and in addition to this has provided bitstream service over the fibre-optic networks of Tjörneshreppur in Northeast Iceland and of Fljótshreppur in East Iceland. Tengir has also purchased the Skútustaðahreppur fibre-optic network in Northeast Iceland.

1000. The electronic communications company Snerpa, which operates in the West Fjords and Austurljós in East Iceland have developed local fibre-optic networks in recent years. This development is in the early stages, and it is not expected to make great progress during the lifetime of this analysis.

1001. As previously stated, many smaller fibre-optic networks have mostly been developed by municipalities and by Mila and Tengir, with state aid during the past years. These are small local networks, many of which are serviced by Mila, and Mila has also purchased many of them or leased long-term. Mila has some kind of involvement with 51 such countryside networks.

1002. There is not only a difference in technical topology of these networks, but they also differ in size and distribution, while Mila has a much larger and more distributed access network if one looks at copper and fibre-optic local loops combined. The historical position of Mila and of the Siminn Group is still very strong as has been shown previously. Mila controls all copper local loops in the country, and they reach nearly all citizens and Mila has an access network that is considered to have close to national coverage with regards to households and companies, who have the option of a broadband connection through copper local loop. Those households that do not have this are variously connected with radio connections at market rates, or they are covered by funding from the Telecommunications Fund for local deployment of fibre-optic access networks.

1003. As stated in Section 4, Mila (previously Siminn) has long had a strong position on the market with its copper local loops, but during recent years it has significantly increased its

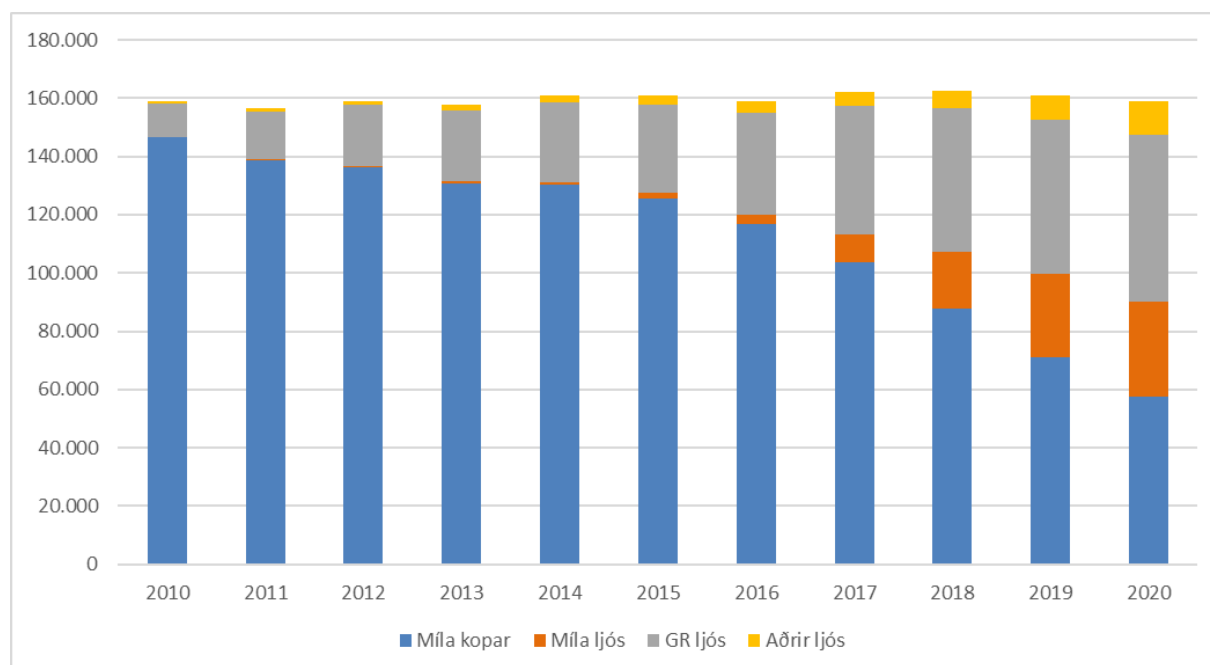
¹⁴⁹ These are 51 local networks, and there is a total of 69 municipalities in the country. See discussion in Section 6.3 and 7.3 on distribution of networks, distribution plans and network topology here above.

supply of its own fibre-optic local loops, particularly in the Capital City Area, at many locations in Southwest Iceland and widely across the country, such as in Akureyri.

1004. With respect to wholesale, the PTA has examined possible demand-side substitutability in connection with the GR fibre-optic network and of other smaller companies and has come to the conclusion that it does not exist except locally and is not sufficiently widespread to be a real option for many customers. With respect to other substitutability possibilities, they are hardly discernible and are subject to substantial limitations. Discussion here will therefore be limited to copper and fibre-optic local loops.

1005. During recent years, fibre-optic connections in use have increased very significantly, mainly at the cost of copper local loops. Figure 8.1 shows this development well and its impact on the number of active connections through copper local loops from 2010 until the end of 2020.

Figure 8.1 Number of active local loops by type 2010 to 2020



Source: Post and Telecom Administration.

1006. As can be seen in figure 8.1 the increase of fibre-optic connections has been substantial in recent years, mainly at the cost of copper local loops. It is clear that copper local loops remain an important part of the market and will be so throughout the lifetime of the analysis in the opinion of the PTA.

1007. Almost all local loops in the copper network were active in 2007, but at the end of 2020 there were about 57,000 active copper local loops, which is about 36% of the total number of local loops in use across the country and about 101,000 fibre-optic local loops were in use which is 64% of the total number of local loops.

1008. At the same time that fibre-optic local loops increased significantly, local loop connections on the whole have not increased correspondingly. One must therefore consider that fibre-optic connections are only to a small extent an addition to the market, but rather that they are replacing copper connections in most instances. The Mila VDSL system on copper

local loops has been a competitive counterbalance to the fibre-optic rollout in question of Mila's competitors. The supply of fibre-optic local loops from GR, Mila, Tengir and from smaller local countryside networks has increased significantly during recent years and in addition to this, only fibre-optic local loops have at the same time been deployed in new districts in the past few years. The PTA expects that distribution of fibre-optic networks to homes and companies will increase by at least 10%, i.e., to at least 90% during the lifetime of this analysis.

1009. When assessing the position of a company on a specific defined market, the position on related markets can have a very significant impact. The position of a company on the electronic communications market as a whole and/or on its sub-markets can lead to this position reaching other sub-markets even though the company would not be considered to have SMP on such a market if it were examined in isolation.

1010. Here below, the competitive conditions on the relevant market will be assessed with the main influencing factors in mind. Following this, in Section 8.6, there will be an assessment of whether some undertaking has SMP on the relevant market. In this regard, market share, financial strength of market players, entry barriers and competition on the relevant market are among the aspects that are taken into account. Aspects such as sales and service systems, whether the electronic communications company in question can offer the same customers varied service in relation to access to a broad product offer, electronic communications networks etc., are also important.

8.2 Market share

1011. A company's market share is an important factor in market analysis. It is however not the only factor that decides whether an undertaking is designated as having SMP, but it can give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to accepted case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the guidelines, a suspicion that single dominance exists with one company does normally not arise until market share has reached at least 40%. This depends, however, on the size of the company in comparison with its competitors. In some instances, a company with market share of less than 40% can be deemed to have SMP. A company with market share of less than 25% would in all likelihood not be considered to have dominance, except in the case where it had joint/collective dominance with another undertaking.

1012. Development of market share over a given period of time is also significant in the assessment of whether the company has a dominant market position. Should a company have a non-transitory high market share then this indicates a dominant market position, while on the other hand a fluctuating or falling market share will indicate the contrary. In new and growing markets, a high market share is less of an indication of market strength than on a mature market with slow growth.

1013. It is one of the tasks of the PTA when assessing SMP, to endeavour to predict future market share development during the lifetime of the analysis in question. This constitutes among other things, the collection of information on development of market share during recent years and the distribution plans of the main companies on the relevant market and endeavouring to predict development of market share on the basis of the above specified data and available market conditions.

1014. In the last PTA market analysis, which was published on 13 August 2014, the relevant market was defined as technological neutral and to belong to the market for fibre-optic local loops, along with copper local loops. It is therefore clear that market share has changed considerably from the above specified analysis because of the increased deployment of fibre-optic networks by Mila's competitors during the period.

1015. The main companies on the wholesale market for local access with fixed connections (Market 3a) are Mila, GR and Tengir as previously stated.

1016. Mila is part of the Siminn Group and is fully owned by Siminn, but since 2007 it has been operated as a separate company within the Siminn Group. The company operates an extensive copper, fibre-optic and Wi-Fi system which reaches a large proportion of households, companies and institutions in the country. Mila started to systematically deploy fibre-optic to households in 2016 and at end of year 2020 the situation was that more than 60% of households in the Capital City Area had the possibility of connecting to the company's fibre-optic access network (FTTH) and in addition to this, the vast majority of households in the Capital City Area could connect to Mila Ljósnet (FTTC/VDSL). One can expect this development by Mila to continue during the lifetime of the analysis, both in the Capital City Area and widely across the country. It is worthy of note that Mila has recently been deploying fibre-optic in Árborg, Reykjanesbær, Akureyri, and Húsavík and at other locations. The company has furthermore, among other things, announced the deployment of a fibre-optic network in the near future in Westman Islands, Egilsstaðir and at other locations. Mila furthermore announced plans in April 2021 to commence collection of start-up charges from inhabitants in order to accelerate deployment of the common fibre-optic local network in various regions in the countryside. The main customers who provide electronic communications services to end users through the Mila fixed line network are Síminn, Vodafone, Hringdu and Hringiðan.

1017. GR is owned by Orkuveita Reykjavíkur (OR) and was founded as a private limited company in 2007 but prior to that was a department within OR. The purpose of founding the company was to offer homes and companies access to a high-speed data transfer system through fibre-optic. For some considerable time, GR concentrated on deploying a fibre-optic network in the operational territory of OR. At the end of 2020, about 109,000 households and companies could connect to the GR fibre-optic network, which is about 67% of all households and companies in the country. With the GR agreement with municipalities in Reykjanes and Vogar along with Árborg, GR projects that the number of households that can connect to the company's network will increase by [...] thousand in the coming years (2021-2023). GR customers are mainly in the Capital City Area, i.e., the municipalities of Reykjavík, Seltjarnarnes, Mosfellsbær, Kópavogur, Hafnarfjörður and Garðabær, with the addition of Akranes, Borgarnes, Hveragerði, Árborg and other locations. The main electronic communications companies that provide service through GR fibre-optic are Vodafone, Nova, Hringdu and Hringiðan. The largest retail company in the country, Siminn, did however not provide service through the GR network for a long time, but in July 2020 the companies signed an agreement to the effect that Siminn would purchase bitstream services from GR. Siminn started providing its services on the GR network on 25 August 2021.

1018. Competition between GR and Mila has up to this point in time mainly been between the Mila VDSL service and the GR bitstream service over its own fibre-optic, but since 2016 competition between the companies has increased significantly in those areas where they both offer data transfer through fibre-optic in the Capital City Area and at other locations in Southwest Iceland. The GR fibre-optic system reaches more households in the Capital City Area than the Mila fibre-optic system, but deployment of the Mila fibre-optic network has

increased rapidly as the company can among other things, leverage its fibre network that lies between telephone exchanges and street cabinets, which is already in place widely across the Capital City Area and it can use the existing ducts and conduits in the company's access network. The Mila distribution plans are furthermore more ambitious than those of GR during the lifetime of the analysis.

1019. The PTA considers that the best way to give a realistic picture of the position and strength of parties on the local loop market is to use the number of connections in use as a basis for calculating market share in wholesale, rather than turnover figures. For this, there are two main reasons. The first is that the two by far the largest companies on the market, Mila and GR, use different approaches in their service offer and business relationship with users. Mila sells access to local loops without active equipment in the copper network. In the fibre-optic access network, access to the local loop in the PON network is technically difficult because of the network topology, as such a local loop is a very short distance from the kerb and there are few users connected to each manhole. GR sells general access to local loops with broadband access together. The second reason is that it is difficult to examine self-supply, particularly with GR and other smaller electronic communications companies. This would require estimating turnover in wholesale from estimated information and such calculations are subject to uncertainty. Given the above, it is the PTA conclusion to use the number of connections as a reference in calculating market share on the wholesale market as this is a more exact metric than estimated turnover figures from income from self-supply in wholesale.

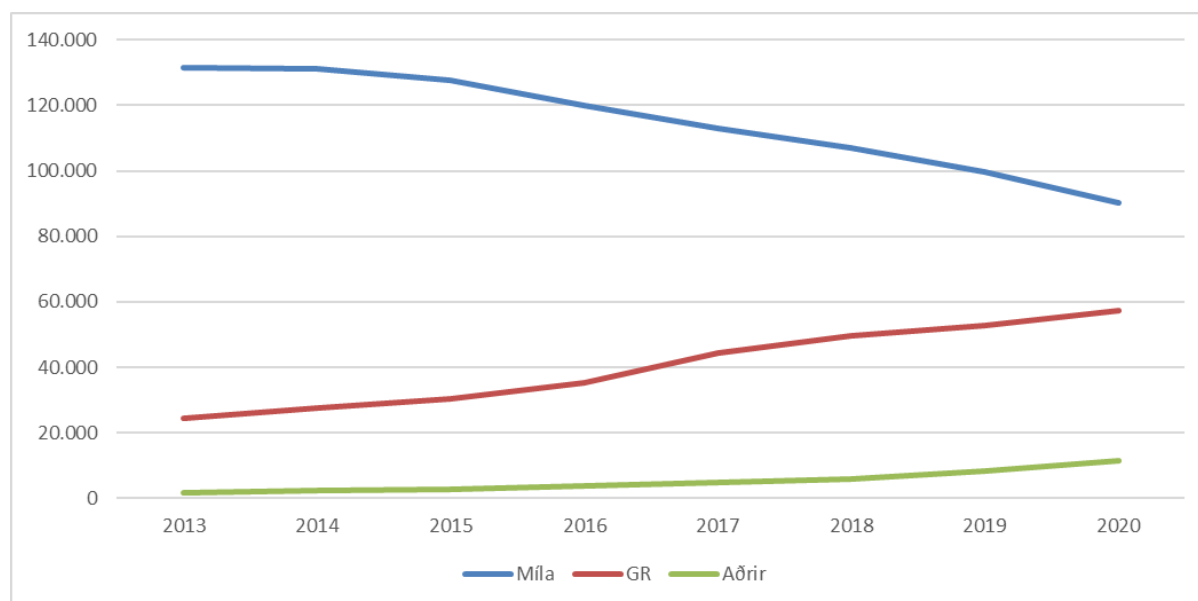
1020. At the end of 2020, there were just about 158,900 copper and fibre-optic local loops in use, of which Mila had something over 90,000 local loops and GR, about 57,000. Increase in fibre-optic local loops has been rapid in recent years while at the same time the number of copper local loops in use has decreased. In mid-2019 the situation was that there were more fibre-optic local loops in use than copper local loops, particularly because of the recent very significant increase in deployment of fibre-optic local loops by Mila at the same time as there was significant increase by GR and further deployment of other fibre-optic access networks. During the same period, copper local loops in use decreased because of a decrease in PSTN and xDSL connections.

1021. Up to the year 2007, Mila and the company's predecessors had about 100% market share in the relevant market. Since 2007, there have however been changes and Mila's market share has decreased to about 57% at a national level at the end of 2020, compared to share of 83% at the end of 2013 when the market was last analysed. The most significant factor here is that GR has developed an extensive network in the Capital City Area and widely in Southwest Iceland and its market share is about 36% at a national level at the end of 2020. Tengir market share has furthermore reached something over 5% at the same time. Other local fibre-optic networks, often owned by municipalities, except the networks of Snerpa and Austurljós, that offer local loop access without mediation of another telecommunications company, are much smaller in scope and their combined market share is negligible at less than 2% of the total number of local loops in use.

1022. Although GR does not normally lease local loops on the relevant market, but rather uses them for their own bitstream system, the PTA believes that it is appropriate to include the number of GR local loops that are in such use in the wholesale market for access to fixed access networks, but these are self-supply. In reality the same applies to Mila, with respect to self-supply of local loops and their use for the company's bitstream system, i.e., the xDSL system that Mila operates on its copper local loops and the GPON system on fibre-optic local loops. The topology of the company's fibre-optic (PON) does not technically allow local loop access.

1023. The PTA considers that the GR fibre-optic local loops exert competitive pressure on the Mila local loop lease, particularly with regards to fibre-optic local loops. A price increase with Mila could have an effect on purchasing behaviour of the company's wholesale customers such that they would rather choose GR where the option was available. In the same manner, GR is to all intents and purposes the only realistic option on the relevant market in the Southwest corner of the country, and if GR internal sales were not included, Mila would be measured at almost 100% share in external sales, regardless of results achieved by GR in the future.

Figure 8.2 Number of active local loops by company 2013 to 2020



Source: Post and Telecom Administration.

1024. When market share is examined, it is also important to have concentration of the market in mind. A common method of measuring concentration on a market is the HHI index¹⁵⁰. The HHI index for market share in this country at the end of 2020 is about 0.46, which indicates very high concentration.

1025. With respect to market share of companies on the local loop market one can assert that it is characterised first and foremost by two salient features. On the one hand there is the strong position of Mila on the market and on the other hand there is the high concentration on the market (HHI index 0.46). The development has tended towards a declining Mila market share, particularly in the light of the GR development and to a certain extent that of Tengir, but this development is solely in specific areas in Southwest Iceland and the North Iceland. It is clear that on the basis of information from the electronic communications companies that GR and Tengir development will be much less during the lifetime of the analysis than the Mila fibre-optic development. This is clearly an oligopoly market, and it is not realistic to expect this position to change in the coming years.

1026. The PTA expects the GR local loop network to continue to grow in accordance with the company plans but will be considerably slower than in recent years. The PTA does not expect

¹⁵⁰ Herfindahl-Hirschman Index. The value of the index lies between 0-1. The higher the value the greater the concentration on the market. If the result is less than 0.1 then action is considered unnecessary. If the result is in the range of 0.1-0.18 then there is average concentration and over 0.18 there is significant concentration.

the changes to be such that they will threaten Mila's strong market position during the period of validity of the analysis with reference to the available plans of the companies, though the gap between the companies may shrink somewhat. It could also have an impact on the other direction if companies like Vodafone and Hringdu were to increasingly migrate from the GR network to the Mila network during the lifetime of the analysis, and the PTA considers this to be not inconceivable.

1027. The PTA believes it to be clear that despite changes having occurred in proportions in local loops where fibre-optic connections have increased significantly in recent years, Mila's market share of the local loop market is still very large and the company's market position very strong. Though Mila may to some extent phase-out copper local loops during the lifetime of the analysis, this phasing out will mostly take place subsequent to the lifetime of the analysis given the 10-year plan that the company announced in the autumn of 2020.

1028. Mila had about 57% of all active local loops at the end of 2020, while the next party, GR, only had about 36% of active local loops. Tengir comes next with 5%. Though the Mila market share has diminished somewhat between analyses, it would be the PTA's view that during the lifetime of the new analysis, Mila could have over 50% at the end of its lifetime. The PTA particularly has in mind that the Mila VDSL rollout on its nationwide copper network, which is mostly completed, strengthens Mila's competitive position on the local loop market across the whole country, and in addition to this, Mila has embarked on major deployment of a fibre-optic local loop network in the Capital City Area and at other locations as well as purchasing or assuring long-term control over local access networks owned by smaller municipalities, or has deployed such networks with state aid. The PTA considers that such development can continue throughout the lifetime of the analysis and Mila announced plans in April 2021 to collect start-up charges from inhabitants in order to expedite deployment of the company's fibre-optic network in various communities in the countryside.

1029. The PTA expects that Mila's market position will continue to be strong during the lifetime of the analysis, which is scheduled to be until the end of 2023. It is expected that the Mila market share will decline by approximately 2% per annum in the coming years, if one considers development of recent years and the development plans of parties to the market. Given that development, one can be of the opinion that the Mila share will be over 50% during the lifetime of the analysis.

1030. The PTA bases its assessment on development of market share during the coming years, on the deployment plans of the main companies and on predictions on uptake, and the development of small local, state aid networks and Siminn's plans for decommissioning the PSTN system and the first steps in Mila's decommissioning the copper network. The PTA furthermore takes into account the agreement between GR and Siminn from July 2020, which came into force on 25 August 2021, and it is clear that all things being equal, the Mila market share will decline somewhat in the coming years because of the agreement. Market share of the main companies on the markets during recent years is furthermore taken into account, see figure 8.2 here above. The Mila market share was 57% at the end of 2020, while GR had 36% share. Mila market share was 83% in 2013. Development is towards fibre-optic local loops increasingly replacing copper local loops, but this will not have a definitive impact on market share during the lifetime of this analysis. There are indications that the decline in Mila market share may slow down in the coming years, among other things because Mila fibre-optic deployment plans are significantly more wide-reaching than those of other parties to the market. The situation could also rapidly change to Mila's advantage, if companies like Vodafone and Hringdu were to increasingly migrate their custom from GR to Mila, and the

PTA considers this not inconceivable during the lifetime of the analysis. For this reason, it is rather difficult to make predictions on likely development with much certainty.

1031. The above specified development, the situation and likely development in market share and a number of other factors that will be explained in the sections here below, supports the designation of Mila as an undertaking with SMP.

8.3 Total size and profitability

1032. The size of the company for example on the basis of turnover or of some other metric, can be important when assessing SMP. If the company is significantly larger than its main competitors, then this can mean competitive dominance. Dominance can be inherent in financial strength, better production methods, cheaper procurement, access to capital, distribution and marketing. A company with longer specialised experience on the market than that of its competitors can create similar dominance, for example in specialised knowledge in technical matters, knowledge of markets and of the legal environment.

1033. Characteristics best suited for comparison are company revenue and profitability on the electronic communications market and economic strength, for example in the form of equity ratio and total assets.

1034. Competitive dominance of the largest company can also be in the fact that its access to capital is easier and also because capital can often be acquired at more advantageous terms.

1035. In general, one can say that financial strength of the largest electronic communications companies, has increased during recent years, as Mila, Sýn (Vodafone) and GR have all gone through recapitalisation subsequent to the bank crash of 2008.¹⁵¹

1036. Mila is a subsidiary of Siminn, who jointly form the largest electronic communications company in the country, the Siminn Group.¹⁵² Siminn retail has most Internet connections, mobile and fixed line telephony subscriptions, in addition to having a very strong position on the data transfer market and on the IPTV and TV markets, and in providing bundles with the extremely popular Heimilispakki. The above, along with the fact that Mila is the largest company on the wholesale market, including the market for fixed access networks, could support competitive dominance for the Siminn and Mila Group on the relevant market.

1037. Here follows a comparison of financial key sizes as shown in annual financial statements of the main companies on the Icelandic electronic communications market, which shows financial strength of the Siminn Group ahead of other companies on the electronic communications market.

¹⁵¹ Siminn and Sýn (Vodafone) are registered on Nasdaq Nordic which is part of the largest stock exchange company in the world. In the end of December 2020, Siminn market value was about ISK 70,2 billion and the market value of Sýn (Vodafone), which is the second largest electronic communications company in Iceland, was about ISK 11.6 billion.

¹⁵² Siminn, Mila and Sensa formed in the main the Siminn Group, but Sensa, which operates in the field of information technology, was sold at the end of 2020.

Table 8.1 Overview of operations of the main companies on the electronic communications market 2019

Operation	2019 Síminn consolid.	2019 Thereof Míla	2019 Sýn consolid.	2019 Nova	2019 GR	2019 Orku- fjarskipti	2019 Tengir
Total revenue	29,071	6,315	19,811	10,301	3,134	496	472
EBITDA	10,516	3,866	5,509	2,678	2,118	230	217
<i>EBITDA ratio</i>	36.2%	61.2%	27.8%	26.0%	67.6%	46.4%	46.0%
EBIT	4,914	1,828	-1,950	1,385	1,222	127	93
<i>EBIT ratio</i>	16.9%	28.9%	-9.8%	13.4%	39.0%	25.6%	19.7%
Cash generated before interest and tax	10,265	3,848	6,304	2,956	2,182	...	204
<i>Cash generated before interest and tax ratio</i>	35.3%	60.9%	31.8%	28.7%	69.6%	...	43.2%
Profit (loss) for the period	3,070	822	-1,748	991	359	88	48
<i>Profit (loss) margin</i>	10.6%	13.0%	-8.8%	9.6%	11.5%	17.7%	10.2%
Investment in property, plant and equipm.	4,200	2,710	1,218	1,083	2,979	189	319
<i>Investment / Total revenue</i>	14.4%	42.9%	6.1%	10.5%	95.1%	38.1%	67.6%

Source: Post and Telecom Administration

1038. Síminn Group total revenue was about ISK 29.1 billion in 2019, followed by Sýn with ISK 19.8 billion in revenue. If one however only view revenue from electronic communications operations, the Síminn Group has about 46% of total revenue from the electronic communications market and this proportion was 57% in 2012.

1039. The Síminn Group net earnings before depreciation, financial items and taxes (EBITDA) was about ISK 10.5 billion in 2019 and is higher than the combined EBITDA of all other companies on the Icelandic electronic communications market. By comparison, the turnover of GR was about ISK 3.1 billion in 2019, which represented about 48% of Míla revenue, and GR is Míla's main competitor on the relevant market. GR revenue was furthermore something under 11% of total revenue of the Síminn Group.

Table 8.2 Overview of balance sheet of the main companies on the electronic communications market 2019

Balance sheet	2019 Síminn consolid.	2019 Thereof Míla	2019 Sýn consolid.	2019 Nova	2019 GR	2019 Orku- fjarskipti	2019 Tengir
Fixed assets	58,571	24,140	25,536	5,993	22,013	2,008	1,466
Current assets	6,950	1,117	6,442	1,841	673	200	29
Total assets	65,521	25,257	31,978	7,834	22,686	2,208	1,495
Equity	36,632	12,261	8,798	4,534	7,969	1,524	523
Long term liabilities	20,268	11,417	16,549	1,367	12,943	591	761
Current liabilities	8,621	1,579	6,631	1,933	1,774	93	211
Total equity and liabilities	65,521	25,257	31,978	7,834	22,686	2,208	1,495
<i>Equity ratio</i>	55.9%	48.5%	27.5%	57.9%	35.1%	69.0%	35.0%
<i>Current ratio</i>	0.81	0.71	0.97	0.95	0.38	2.15	0.14
<i>Net interest bearing debt</i>	16,014	8,010	10,953	134	13,483	264	772
<i>Net interest bearing debt / EBITDA</i>	1.5	2.1	2.0	0.1	6.4	1.1	3.6
<i>Interest coverage ratio EBITDA / Interest paid</i>	8.9	5.1	5.6	24.3	3.2	...	5.7
<i>The weighted average long term interest rate</i>	5.26%	4.76%	4.4%	5.5%

Source: Post and Telecom Administration

1040. Síminn Group equity was ISK 36.6 billion at the end of 2019 and Síminn equity is more than the combined equity of other companies on the electronic communications market. Sýn equity was ISK 8.8 billion at the end of 2019 and GR equity was ISK 8 billion at the same time.

1041. If one considers the debt/EBITDA ratio, which is found by dividing EBITDA by interest-bearing debt having deducted cash in hand, then the proportion is 1.5 for Siminn in 2019, 2.0 Sýn and 6.4 GR. The proportion gives investors and/or lenders an idea of how long it will take a company to pay up its debts, without regards to interest, tax, depreciation or amortisation. A high ratio can lead to higher interest and difficulties with loan funding.

1042. Of the companies that own fixed access networks or rent access to them, Mila's is the only network that covers almost the whole country. The proportion of Mila revenue of total revenue of the companies operating on the local loop market was 62% in 2019 and was 78% in 2012. GR revenue was about 30% of total revenue and was 20% in 2012. Other provider companies jointly had less than 10% of revenue, which is a significant increase from 2% share in 2012. Mila revenue has thus declined proportionately from 2012, while revenue of GR and others has increased at the same time. Mila's position is however still very strong on the wholesale market for fixed access at a national level. One must keep in mind that the company revenue mix on the market for fixed access network is not entirely comparable because of varying operations of the companies in question, but it does give a strong indication of the position of companies on the market.

1043. It is appropriate to point out that GR is fully owned by Orkuveita Reykjavíkur (OR) which is a public sector company mostly owned by the City of Reykjavík. OR is financially very strong in comparison with the above specified electronic communications companies. It should however be noted that, according to article 36 of the Telecommunications Act, GR shall be separated financially from other OR operations such that it is equivalent to an unrelated company and care should be taken that competitive activities such as GR operations are not subsidised by other operations or are operations which enjoy monopoly or special rights in fields other than electronic communications. The PTA has the role pursuant to the law, to monitor that electronic communications operations are financially separated from utility operations which enjoy monopoly or special rights in fields other than in electronic communications, and the PTA has for this purpose, imposed various obligations on GR in recent years.

1044. It is the opinion of the PTA that GR does not enjoy in a direct manner the financial strength of its owner more than other electronic communications companies from their owners, e.g., from pension funds which are the main owners of Siminn and Sýn. Deviations to financial separation between GR and OR, that the PTA has identified during the duration of GR operations, cannot in the opinion of the PTA be considered significant. With the PTA Decision no. 3/2019, the Administration conducted such an investigation for the years 2016-2017¹⁵³. The decision was part of the PTA surveillance of the implementation of financial separation of GR within the OR Group, pursuant to article 36 of the Electronic Communications Act. The investigation covered the period 2016-2017 and was based on book-keeping and data from operations for these years. It was the main conclusion of the PTA, that financial separation between OR and GR had been in accordance with the provisions of Article 36 of the Electronic Communications Act, with the exception of the provision of a loan to GR in connection with the cash polling of the OR Group. The PTA also raised an objection to the conditions from

¹⁵³In its prior decisions, the PTA has also imposed various obligations on GR to ensure the financial separation in question and one can in this connection indicate PTA Decisions from 13 November 2006, number 32/2008, number 14/2010, number 25/2010, number 39/2010, number 2/2014 and number 11/2015. One can furthermore indicate rulings of the Appellate Committee for Electronic Communications and Postal Affairs from 21 December 2006, 27 August 2007, number 3/2010 and number 5/2014.

credit institutions in GR loan agreements with respect to OR ownership of GR. The PTA therefore considers there to be a need to impose obligations on GR for the implementation of financial separation between OR and GR with respect to the above specified issues. The PTA plans in 2021 to conduct an investigation on the implementation of financial separation between GR and OR for the years 2018-2020. The PTA does not have the legal authority to impose penalties on GR for breaches, other than per diem fines. ESA is now processing a complaint from the Siminn Group relating to alleged unlawful state aid in connection with GR behaviour, which was described in the above specified PTA Decision no. 3/2019. In the event of unlawful state aid, GR will probably have to reimburse the support.

1045. Competitive dominance constitutes among other things that Mila enjoys greater economy in operations than other companies in wholesale and is in addition to this, owned by far the largest company in retail on the electronic communications market. This can among other things, be manifested in more economical procurement, in production methods, in distribution and marketing.

1046. When taking into account the size and financial strength of Mila as a network operator on the market for fixed access networks, along with the position of the Siminn Group on the electronic communications market, it is the conclusion of the PTA that the total size of the Group, profitability and economic strength over and above that of competitors strengthens the Mila position on the relevant market which affords the company a significant competitive advantage.

8.4 Entry barriers

8.4.1 General comments on barriers to entry

1047. 'Entry barrier' is a collective name for various factors that can influence companies' market power. If there are few barriers to a market, then possible profitability is an attraction for new companies to gain market share from the incumbents. Potential competition from new parties can influence the behaviour of a company with significant market power and can lessen its harmful impact on competition. Entry barriers on the other hand weaken or prevent competition.

1048. There is a strong relationship between entry barriers and profitability. The more entry barriers that exist, the greater the profitability that can be expected from incumbent companies, which can often be attributed to a lack of competition rather than to efficiency. An ideal situation for an incumbent company is one where there are high entry barriers and low exit barriers. In such circumstances, incumbent companies deter new companies from establishing themselves and companies without profitability will soon give up.

1049. The objective of the PTA market analysis and possible subsequent measures is, as before, to strengthen competition on the relevant market. It is conducted for the purpose of encouraging innovation and development, of enhancing companies' competitiveness and the interests of consumers. One way to achieve this is to limit entry barriers to markets, which can be in varying forms. Here below there is further discussion on the main barriers that are considered to prevent entry of new parties to the market for local loops.

1050. The entry barriers that confront companies on the relevant market are on the one hand to a large extent attributable to the strong position of the Siminn Group, of which Mila is part, and on the other hand to difficulties encountered by new electronic communications companies in creating infrastructure they need to compete on the market. The former category includes control of infrastructure that is difficult to duplicate, economy of scale, economy of scope, access to capital and vertical integration. The latter category can among other things include sunk costs, restrictions to growth and costs for service systems.

1051. Entry barriers usually have their roots in the development and position on the electronic communications market but in some instances, there is a risk that a party with SMP could see an advantage in making it difficult for competitors and delaying their entry to the market, for example by refusing requests for space in telephone exchanges, by setting restrictive conditions on access for repairment to buildings that house leased facilities and so on. It is important to discuss possible entry barriers on the relevant market and take a position on whether these are real barriers or not.

8.4.2 Control of infrastructure that is difficult to duplicate

1052. When a company has control over facilities that are difficult or expensive for others to duplicate, this can be a significant barrier for its competitors. One example of such facilities is wide-reaching access and trunk line networks. This aspect must be examined in connection with the discussion on sunk costs in Section 8.4.3.

1053. It is possible to reduce investment costs by cooperating on electronic communications structures, that is to say co-location or other sharing of networks. Co-location is for example when new parties locate their equipment in buildings built for that purpose. Savings from this can be significant, particularly in rural areas. Sharing can variously be on the basis of free agreement, agreements reached on the basis of an obligation Pursuant to article 25 of the Electronic Communications Act or on the basis of obligations imposed for access, pursuant to article 28 of the Electronic Communications Act. It is also possible to limit investment costs with joint civil works when deploying local loop networks.

1054. The installation of a new local loop network is not just a question of earth cables, distribution frames, street cabinets and in-house installations. Buildings are also required for terminal equipment to which the local loop connects and in urban areas it can be difficult to find a suitable location for such equipment and this often involves considerable cost.

1055. It is not given that network operators will be granted permission to excavate for new local loops. In urban areas it is usually necessary to remove existing constructions (such as pavements and roads) before a ditch is excavated. Apart from the substantial costs, this can be inconvenient for inhabitants living nearby. One must consider it doubtful that companies will see the advantage in installing the same kind of local loops that already exist in the areas in question much more than has already been done. It is however likely that Mila will deploy further fibre-optic connections in buildings in urban areas and thus increase the density of their fibre-optic network. Municipalities and small local telecommunications companies have however to some extent deployed local access networks. There is no evidence that such networks, with the exception of the development of the networks of GR, Tengir, Snerpa and Austurljós to some extent, have been deployed on competitive grounds up to this point in time, but funding for this development has rather been from the municipality in question with the

addition of grants from the Telecommunications Fund and from the Regional Development Fund in most instances. In recent times, the Competition Authority has granted Mila and GR on the one hand and Mila and Tengir on the other hand, permission to share civil works among other things in the Capital City Area, in Árborg, in Reykjanesbær, and in Húsavík. Such sharing can support further fibre-optic rollout in this country in profitable areas.

1056. In larger areas such as in the Capital City Area there is a lack of facilities for electronic communications equipment at many locations. Mila buildings are now used at some locations and there are obligations on the company for access where there is space, according to the prior decision by the PTA on the relevant market from 2014. This problem will probably diminish when the decommissioning of Siminn PSTN voice telephony system is completed, and this is expected to be in the second half of 2021. GR utilises, however, to a large extent buildings owned by OR, but there is no access obligation on the company and OR offers hosting of equipment to a considerable extent. According to information from GR, [...] % of GR connection points are in facilities owned by OR. GR has also leased facilities in Mila buildings to some extent.

1057. As has been previously stated, access to local loops on its own does not ensure normal competition. New parties in the market must also have the option of locating their equipment near node points (for example main distribution frames in telephone exchanges). In some instances, it could be a possibility to locate equipment in other buildings close to the telephone exchange, but more often than not there is no option but to find space for the equipment in the telephone exchange in question and to ensure access to the equipment for monitoring and maintenance. It can however sometimes be difficult in some instances because of lack of space. In built-up areas it can be difficult for companies to erect new buildings for their terminal equipment as building land is often not available and where it is, the cost of buying is high. Denial of requests for facilities or irregular fees can be a barrier for new companies on this market.

1058. Available space in Mila street cabinets must be examined specially with regards to the Mila VDSL rollout, because as there is very limited space in street cabinets it could transpire that there is not sufficient space for more than one company to set up its DSLAM equipment in each individual street cabinet, but in accordance with existing obligations, Mila is obliged to provide VULA service to resolve this problem. There has on the other hand been no demand for the VULA solution in the Mila copper network. It seems that Access Option 1 and Access Option 3 fulfil the needs of most players on the market and that VULA is not, as things are today, offering an addition that electronic communications companies are prepared to pay extra for. In addition to this, one can hardly see that use of VULA is a realistic option, neither technically nor financially. One also has to note that there could potentially be interference if two parties have their equipment in a small space. Supply of Access Option 1 and 3, in addition to the fact that electronic communications companies are increasingly migrating from VDSL to fibre-optic, has meant that the importance of facilities for new entrants in street cabinets has diminished in recent years. This means that Mila has a great advantage with regards to facilities because of the first mover advantage effect of the company's copper network.

1059. The PTA considers it unlikely that any party will see the advantage in deploying new fibre-optic networks across the country. It is rather likely that companies such as for example utilities or individual municipalities in the countryside will concentrate on introducing fibre-optic to their home areas and that this will be done in smaller areas and that GR will focus on larger urban clusters in its operational territory in the lifetime of the analysis.

1060. The PTA considers the installation of new local loops to be problematic and unrealistic in most instances, at least on competitive grounds. One can, however, expect that the development by GR and Tengir will continue in these companies' existing operating territories in the coming years and in addition to this smaller municipalities in the countryside have increasingly decided to fund their own local fibre-optic with state aid. The above, along with the lack of facilities that is the reality at many locations in the country's most densely populated areas, particularly with respect to fibre-optic rollout that is now under way, create barriers for general competition.

1061. The PTA comes to the conclusion that facilities can, along with delays in processing applications, be a barrier to competition, that is based on service offer through a fixed line access network, if the appropriate wholesale obligations are not in place. Shortage of space with Mila is not generally a problem with that company today, and in addition to this, available space will increase with the decommissioning of the voice telephony system in the coming years. For this reason, lack of facilities is not seen as a barrier for competition, so long as obligations on access to it are in force, but it could be an access barrier if obligations were not in force.

8.4.3 Sunk costs

1062. When a company enters a new market, this often requires certain preparatory work and initial investment. If entry to a market fails it can sometimes be possible to recover such costs, for example with the sale of investments and equipment. Sunk costs are those costs that the new entrant has to bear as a loss should he not be able to establish himself on the market. Sunk costs are a barrier to entry, because the incumbent companies on the market do not have to bear them because in most instances, they have already made them. The new companies that are finding their place on the market, as is the case here, are at a greater risk of having to bear sunk costs than the incumbents who have already written off a large proportion of their investments.

1063. Costs, for example for marketing are generally highest at the beginning of operations. If a new party is to attract a significant share of customers from incumbent companies it will presumably need to invest heavily in extensive marketing. Sunk costs can be in investments in electronic communications equipment and business costs related to marketing, particularly with young companies that are trying to gain a foothold on the market. One can assume that sunk costs are likely to be high in Iceland for geographic reasons and because of the widespread of communities.

1064. Despite the fact that most local loops in this country have long been copper lines, companies that deploy local loops have only installed fibre-optic local loops in recent years. Mila currently lays fibre-optic in new districts and in older districts at many locations in the Capital City Area and also at many locations in urban areas, but at the same time offers VDSL high-speed solutions over copper local loops at most locations where copper local loops are in place.

1065. The initial cost of installing a network is first in connections outside buildings, second in the excavation of trenches, third in finishing off in streets and lots and fourth in the fibre-optic cable itself. The value of the fibre-optic cable is not such that it is realistic to assume that the cost can be recovered, except to a long period of time. One must however keep in mind that there could be considerable value in the fibre-optic cable that has been installed underground,

particularly at locations where there are no existing fibre-optic connections. Where there are existing fibre-optic local loops, one must on the other hand assume that the resale value of a new cable is naturally less.

1066. One can assume that sunk costs for local loops or fibre-optic rollout will vary depending on local circumstances, although they will always be significant. One can assume in the light of the fact that quite a number of municipalities and utility companies have chosen to install fibre-optic that there is a market at those locations and that resale of a new fibre-optic network is such that the initial financial investment may possibly be recoverable, but it is difficult to rely on this. Mila has recently been purchasing many of these local networks, leasing them long-term or deploying them with state aid.

1067. It should also be noted that new companies find it difficult to start competing at national level with Mila, which has its own trunk line system, local loop network and appropriate bitstream equipment, except in limited areas. The PTA considers that sunk costs are an entry barrier for new companies on the wholesale market for fixed access.

8.4.4 Economy of scale

1068. Economy of scale is said to exist in company operations where increased production means a lower total cost for a product or service unit. This is characteristic for technical companies which have relatively high fixed costs and low variable costs. Economy of scale can act both as an entry barrier and as a competitive advantage. Network operators already on the market endeavour to operate their own networks and bitstream systems with optimal usage in mind. New network operators need time to develop their operations, gain a customer base and traffic and can thus not expect to enjoy the same economy of scale as those that have operated their electronic communications networks for years.

1069. With respect to the relevant market, the operation of a local loop system constitutes in itself economy of scale in proportion to the size and scope of the network in the operations of the party in question. This is because of the substantial underlying investment and fixed costs that are for example inherent in the network. Economy also manifests itself in lower initial costs as a result of bulk purchasing of cable and in agreements with contractors for excavation, finishing and connections into buildings. In the same way economy of scale can result from the minimum number of repairmen and other staff with appropriate knowledge and specialisation that are needed to provide adequate service. These factors can in some instances be a barrier to entry into the market.

1070. xDSL connections on copper local loops are on offer in almost every commercial and residential building in the country, but the number of connections in use has declined significantly in recent years while at the same time there has been a substantial increase in fibre-optic local loops. Economy of Mila copper and fibre-optic local loop system because of their size in excess of those of competitors, particularly GR, is therefore not the same as it was.

1071. On the other hand, one must keep in mind that Mila offers services almost nationwide, and in large areas it is the only company on the market. In such a situation Mila has had time to establish itself and acquire all business in the regions in question, which is an option that other companies do not have. In addition to this, Mila has been purchasing many local fibre-optic networks in rural areas which have been deployed by municipalities with the help of the Telecommunications Fund. Mila has furthermore deployed a number of such networks with

state aid. One can expect this development to continue during the lifetime of the analysis. One can assume that this will make it less economic for new companies to enter the market areas in question and achieve minimum economy of scale.

1072. After Vodafone received access at the beginning of 2011 to optical fibres owned by NATO that encircle the whole country, the company has increased its offer in urban municipalities and villages at many locations around the country. The optical fibres in question belong to the trunk segment of the leased line market, but the company does not operate its own access network, except in the form of local loop lease from Mila to some small degree, as the company purchases first and foremost access to bitstream through access networks owned by other electronic communications companies. In addition to this, the agreement expires in 2022 and it is unclear what will happen then with the NATO cable in question with respect to Vodafone and other interested electronic communications companies.

1073. Despite the major development of the GR local loop network in the past years, there is still quite a way to go before it approaches the size of the Mila local loop network, except in a few municipalities in the Southwest corner of the country, i.e., in Reykjavik and neighbouring municipalities in the Capital City Area and in occasional municipalities in Southwest Iceland. The PTA does not expect any significant changes in this respect during the lifetime of the analysis, as the current GR plans allow for the country being the company's market territory in the long term, but there is no available action plan to this effect. The PTA considers it inconceivable that it will be realised during the lifetime of this analysis.

1074. The PTA concludes therefore that Mila enjoys general economy of scale in most parts of the operation and development of network systems which strengthens Mila's position against other companies on the market. This economy of scale can to some extent manifest itself as an entry barrier for the latter companies or for possible new entrants. In the opinion of the PTA, GR also enjoys significant economy of scale, but to a lesser degree than Mila.

8.4.5 Economy of scope

1075. Economy of scope is the economy where it is less expensive to manufacture two or more goods together rather than each separately. A lower cost is achieved by jointly using resources in the production. A good example of this is the use of an electronic communications network where a variety of services are offered to consumers. Economy of scope can act both as an entry barrier for new parties and as an advantage in the market over competitors.

1076. As has been stated before, Mila has the only local loop system in the country (copper and fibre) with close to national coverage and has almost 100% market share of the wholesale of copper local loops. The company has been gaining significant ground, with respect to market share in wholesale of fibre-optic local loops and had about 32% market share there at the end of 2020, which had increased by 24% from the end of 2018, but had been negligible up until 2016. GR had 57% market share in the sale of fibre-optic local loops at the end of 2020 and had 67% at the end of 2018. Tengir had 8% market share in fibre-optic local loops at the end of 2020 and 9% at the end of 2018. The PTA considers that during the lifetime of the analysis, Mila's share in fibre-optic local loops will continue to increase at the cost of the shares of GR, Tengir and other fibre-optic operators. In addition to this wholesale service the Siminn Group provides various retail services which leads to a certain economy of scope, for example because of better access to customers of retail services. Then there is the fact that Siminn is the party

that has the highest market share at retail level in sale of broadband connections over fibre-optic and has by far the largest market share in sale over the copper network. The Siminn market share is thus just under 50% and could exceed 50% during the lifetime of the analysis as a result of the agreement with GR from July 2020. Siminn and Mila also enjoy economy of scope by operating services throughout the whole country, that is to say through its ubiquity with consumers.

1077. Mila has a network system that reaches virtually the whole country that was initially developed for fixed line telephone. Both Mila and Siminn (the Siminn Group) can jointly offer comprehensive services throughout the whole country almost independent of the user's geographic location. It is possible to assert that this position of these parties can act as an access barrier to new companies that do not have such widely distributed systems or breadth of service offer.

1078. It is clear from the above discussion that Siminn is the company that operates in most areas of telecommunications services at retail level, and its operations are furthermore extensive on markets for subscription TV service.

1079. With respect to the electronic communications market, Siminn offers comprehensive telecommunications services on the retail market, i.e., voice telephony, mobile phone and Internet service. The Siminn subsidiary, Mila, owns an electronic communications backbone system with almost national coverage. On the wholesale market, Mila has a trunk line network with almost national coverage and an access network that Siminn uses to provide comprehensive electronic communications services on the retail market. Other electronic communications companies also purchase service from Mila at wholesale level in order to provide electronic communications services on the retail market. The service offers and economy of scope in the above-mentioned understanding, Siminn is therefore substantial in electronic communications service, both in that the company offers a variety of services in this field in addition to the fact that it has a large share of all markets.

1080. Siminn has been finding its place in TV service during recent years and by offering this service with other types of electronic communications service, Siminn has gained a dominant position on the bundles market with the company's Heimilispakki, which the company began to offer in the autumn of 2015, and has thus rather, if anything, strengthened its position on the electronic communications market in recent years.

1081. The position of Vodafone in Internet service is similar to that of Siminn with respect to product offer but is weaker when it comes to mobile phone and voice telephony service, and in addition to this the company has had a very limited access network of its own. The company offers substantial TV service with its electronic communications service in bundles and enjoys economy of scope for this reason, though less than Siminn enjoys.

1082. To a certain extent one can say that GR enjoys economy because of its ownership ties with OR. There are agreements between OR and GR that OR handle a large part of the necessary support services for the operation of a company, for example all the company's invoicing is handled by OR along with a large part of its book-keeping. On the other hand, GR does not offer electronic communications service in retail, only a connection with its fibre-optic network in wholesale.

1083. GR also has access to facilities in OR buildings in its utility areas. GR thus enjoys economy of scope to an extent that is not available to companies other than Mila at such a scale.

1084. There is nothing to indicate that other network operators enjoy economy of scope to any extent as they are much smaller and generally limited to specific urban kernels in the countryside.

1085. The PTA concludes that Mila has economy of scope, both within the company itself and as part of the Siminn Group, as does GR as a subsidiary of OR, that new companies on the market do not enjoy to the same degree.

1086. Of the companies that enjoy economy of scope, the Siminn Group is a much larger company with more scope in its offer in the field of electronic communications services than Vodafone or GR, i.e. that Siminn in retail and Mila in wholesale have a more varied service offer than other companies that provide local loop service on the relevant market and has greater possibilities than others to leverage the economy derived from more products using staff, facilities and support services as a result of this broader product offer.

1087. The PTA therefore believes that even though both of these companies enjoy economy of scope, the economy is not equal and for this reason it is only the Mila economy of scope within the Siminn Group which is considered to be an entry barrier.

8.4.6 Access to capital

1088. Access to capital can have a deciding influence on the possibilities for a company on a competitive market. This is particularly the case if substantial initial investments are required. Financially strong companies with good access to capital, other things being equal, are in a better position and can more easily protect themselves from competition than comparable companies that do not have as good access to capital.

1089. The difference between companies, with respect to access to capital could constitute an entry barrier. Good access to capital can both constitute an entry barrier and can indicate market power.

1090. Conditions on financial markets have improved significantly from 2008 when the international financial recession occurred and when the financial recession in this country was particularly difficult and had an impact on all operations in the country.

1091. Access to capital has generally improved for companies on the electronic communications market as the economy improved in recent years but Siminn, Mila, Vodafone and GR have all gone through recapitalisation. As an example, one could mention that long-term debts of the Siminn Group were recapitalised in 2017 and the company took a new loan to the amount of ISK 18.4 billion. Vodafone funded the purchase of specified assets of 365 miðlar hf. with a long-term loan to the amount of ISK 4.7 billion at the same time. Both of these companies are registered in the NASDAQ Nordic stock exchange.

1092. It is a very expensive measure to develop a network as extensive as Mila, and to a certain extent GR, operate today. The Mila network was built to a large extent during the period of monopoly and state control. The development of the GR network is still incomplete and in reality, it is not certain how extensive it will be, but there is every likelihood that it will not reach further than the Southwest corner of the country, at least not during the lifetime of this analysis. Tengir in Akureyri is still developing its fibre-optic network in Eyjafjörður area and widely in North Iceland, but this development is proportionately much less advanced than the

development in the Capital City Area. It is clear that access to capital for developing an access network will continue to be a competitive barrier because of the high investment costs, as can be expected, particularly in more sparsely populated communities.

1093. Finance for new investments is more easily available to operating companies that have a proven track record in development and operation of networks, and one can assume that lenders will require at least 35% on funding and other conditions. It will require considerable capital to develop a network comparable to that developed by Mila, or even the network now developed by GR. In order to do this, access to capital is necessary. In addition to this, it must be considered extremely unlikely that there are financial grounds for more than two electronic communications networks in this country in any given area, and some locations only one. An important issue with respect to financing a local loop network is that such finance needs to be very long-term, as electronic communications networks require an extended period of time to repay capital outlay. This increases the importance of companies having easy access to capital and/or have already financed projects.

1094. One must however note that as has been previously stated, it is not necessary to have a network with national coverage to survive on this market. It is also a fact that if one looks at the network operators that have entered the local loop market in recent years, none of them aims to operate a network with national coverage, except possibly GR, though the PTA considers there to be not much likelihood that this will be realised in the lifetime of this analysis. Network operators are even related to relevant utility companies that see an advantage in connecting their market territory with fibre-optic. The same applies to individual municipalities.

1095. It is however clear that in order to be viable on the relevant market, a company needs to have significant market share and thus distribution of its network. Companies other than Mila, GR and Tengir have very limited distribution and their joint market share is only about 2% of the relevant market and just under 3% if one only considers fibre-optic local loops, and in addition to this Mila has been purchasing such networks in recent times, ensured long-time control over them or deployed such networks with state aid. Mila has also taken over the operation of more such networks where the company operates a bitstream system. In order to reach more users a company has to develop a wider and larger network than smaller companies currently have, and this requires access to capital.

1096. Information on investments in fixed assets in the PTA collection of statistical data does not indicate that GR has had better access to capital, subsequent to the bank crash than the Siminn Group, as Mila maintained in its comments on the preliminary draft market analysis. If one examines investments of the companies related to electronic communications of the companies during 2008 and compares with investments subsequent to the bank crash [...] as can be seen in the following figure 8.3.

Figure 8.3 total investments in tangible assets 2008 to 2019

[...]

1097. In the opinion of the PTA, it is extremely unlikely that there are financial grounds for more than two electronic communications networks in this country, and some locations only for one, if one takes into account investments in fixed operational assets of the past years, which to a significant extent are attributed to fibre-optic local loops.

1098. For the above reasons, it is the PTA's belief that because developing access networks requires such substantial financing that access to capital is an entry barrier for new companies on this market.

8.4.7 Barriers to expansion

1099. A market with significant potential for growth is much more attractive to new operators than a stagnant (mature) market. It is probable that undertakings contemplating entry into a stagnant market must mostly lure customers away from established operators. Where there are limits to a market's potential to grow and to offer more extensive services than those existing on the market, entry barriers may exist.

1100. Copper local loops have already been installed to almost every single household and company in the country which on its own severely limits the market's growth potential as all significant entry for new companies must be directed at competing with the existing local loops. Mila has furthermore been significantly expanding its fibre-optic system in the past years on the relevant market, as have companies like a GR, Tengir, Snerpa and Austurljós, but they however, on a much smaller scale. The growth potential on the market is thus almost exclusively in the installation of fibre-optic in those areas where there are only copper local loops, both in mature and greenfield districts. There has been an increase in building development in recent years but even if the development of new districts increases, it is unlikely that there is significant future growth potential in this field.

1101. The growth in local loops has been in installation of fibre-optic local loops. The Mila fibre-optic network is estimated to have reached at least 77,000 households and companies at the end of 2020 and the largest part of this is in the GR service territory. In March 2021, the PTA had not received replies to repeated questions on specific distribution plan for fibre-optic, other than that, significant investments are scheduled until the end of 2023, at least. Information on Mila's fibre-optic deployment for the next years were finally delivered to the PTA in June 2021. It is therefore clear that Mila will, during the lifetime of the analysis, continue to conduct very vigorous fibre-optic deployment. GR projects that the fibre-optic rollout currently planned will be completed in 2023 in the GR deployment territory. With a new agreement between GR and the municipalities in Reykjanes and Árborg, it is expected that the number of households that can connect to the GR network will be about [...] at the end of 2023, and that the end of 2020, the network reached about 110,000 spaces. GR customers are mainly in the Capital City Area, i.e., the municipalities of Reykjavík, Seltjarnarnes, Kópavogur, Hafnarfjörður, Garðabær and Mosfellsbær, with the addition of municipalities in South and West Iceland. Tengir has modest plans for increasing connections at Akureyri, in the Eyjafjörður area and widely across North Iceland in the coming years. At the end of 2020, the Tengir network reached about 9,600 spaces and the company expects them to have reached [...] at the end of 2023. The same can be said for the Snerpa fibre-optic network in the West Fjords and of Austurljós in Egilsstaðir and neighbouring area in East Iceland. The plans of those companies are modest, but at the end of 2020. The Snerpa fibre-optic network reached about 1,200 spaces and the Austurljós network about 200-300 spaces. About 50 small local access networks have been deployed or are under development with state aid (Telecommunications Fund). The municipalities in question have in most instances made an agreement with an electronic communications company to handle user services and there are also many instances where Mila has purchased individual networks, leased them long-term or deployed them with state aid.

1102. Extensive distribution of fibre-optic local loops in the most densely populated areas has a very significant impact on growth potential for local companies. It must be considered almost impossible for other companies to see an advantage in installing local loops to households that are already connected with both fibre-optic and copper, not least in areas where dual fibre-optic systems exist.

1103. The existence of older local loops means that the installation of new local loops will always need to compete with the existing ones. In the light of substitutability between copper local loops and fibre-optic local loops this significantly impairs companies' possibilities for growth on the relevant market.

1104. It is thus the PTA conclusion that growth possibilities in the field of installation and operation of local loop networks are limited and that the lack of growth possibilities is likely to act as a barrier for new companies on the relevant market.

8.4.8 Sales and service systems

1105. Well-developed service systems can act as entry barriers for new parties and as a competitive advantage. This particularly applies on markets where substantial costs are tied up in the development of distribution and sales systems or where all the companies have made exclusive agreements with the largest and/or most important distribution parties on the market.

1106. Service systems can represent a large investment for new companies that would like to establish themselves on a given market. The presence of established operators that have perhaps written off their expenses can represent an entry barrier for new operators. Companies that have efficient service systems at their disposal can therefore have a competitive advantage over new market participants.

1107. Investment in service systems is not directly proportional to its number of customers or to its total sales but this investment expense is proportionally higher per customer in smaller companies. Therefore, an investment in an efficient service system represents economy of scale. The Siminn Group has for example developed service systems and line book-keeping over a period of many decades, while new companies must develop such systems from the ground up.

1108. Efficient service systems are the foundation on which customer services rest, as customers normally communicate with the company through its service systems. It is through the service systems that sales are registered, ordered, activated and the charges collected through invoicing. It is difficult to see how a company can maintain reliable operations and a sufficiently high level of service to build up a convincing position on a service market without such systems.

1109. During recent decades Mila, previously Siminn, has developed service systems and line book-keeping that can be used by Mila. One must also assume that Mila can make use of the joint order entry system and invoicing within the Siminn Group.

1110. At the same time one can say that GR benefits from being related to OR and from having access to its service systems, in the same way that Mila benefits from access to Siminn systems. The same can be said about Vodafone, but today that company operates in a very limited manner on Market 3a. One must consider that Tengir enjoys a well-developed service system,

though its economy of scale is less than the service systems of Mila and GR. It is unlikely that other companies that have commenced deployment of fibre-optic in a limited manner, or companies that plan operations on the relevant market have the same access to such developed service systems that these two companies have.

1111. In the PTA's opinion, investment in service systems can represent an access barrier for smaller electronic communications companies on the relevant wholesale markets, and for new companies.

8.4.9 Vertical integration

1112. Vertical integration exists where the same party operates on more than one production and/or sales level, for example he manufactures goods, sells them to another party in wholesale and also sells the goods himself at retail level. A company that integrates varying operations in this manner in the value-added chain can by virtue of its position on the wholesale or retail markets, erect barriers to competition on the market in order to strengthen its position against competitors.

1113. Vertical integration from the point of view of an electronic communications company has certain advantages as the company can combine all the services in question under one umbrella and for example use the same service systems for both the wholesale and retail parts. In addition to this, a company with vertical integration can relatively easily discriminate against competitors on the retail market because of its position on the wholesale market or make it difficult for competitors on the relevant wholesale markets, for example, when it does not offer its retail service on the networks of its competitors at wholesale level. Such retail service can be in the form of electronic communications service, TV service or bundles of such services.

1114. Despite the fact that Mila only handles wholesale services and Siminn both wholesale and retail, this does not alter the fact that these two companies together form a vertically integrated company group. At the beginning of 2021, the largest part of that wholesale service remaining at Siminn, subsequent to the settlement with the CA in 2013, was transferred to Mila, such as the IP-MPLS network and the RAN part of the mobile network. Siminn is Mila's largest customer as sales to Siminn represent over 70% of Mila's revenue for the year 2020. DSLAM equipment is located at Mila, like the local loop system, and Siminn leases access to local loops and bitstream access from Mila. As Mila is a subsidiary fully owned by Siminn, ownership, management and financial connections between the companies are undisputed. The PTA considers it fully proven that the Siminn Group has various opportunities to leverage the strength constituted by vertical integration, despite the fact that conditions were imposed in the settlement with the CA that are intended to mitigate this impact. Further discussion on vertical integration and on the settlement with the CA, can be found in Sections 10.2 and 10.4.

1115. In the case of the GR fibre-optic local loops, vertical integration is even greater regarding the relevant wholesale market. GR actually does not sell access to its own local loops but only to bitstream. This is an instance of almost entirely internal sales on the relevant market where the difference between local loops and bitstream is not particularly distinct to outside parties. Customers can generally not purchase access to local loops alone but must also purchase access to bitstream. This is however not always the case and there are known examples of companies that have received access to dark fibre on the corporate market but the companies that lease local loops from GR are relatively few.

1116. The PTA considers that vertical integration on this market is likely to be an entry barrier for new companies to the market, despite some kind of self-imposed separation of wholesale and retail between Mila and Siminn in 2007, as the two companies were both part of the Skipti Group (now Siminn Group). The settlement between Skipti (now Siminn) and the Competition Authority from March 2013 (CA Decision no. 6/2013) reduced to some extent the management connections between Siminn and Mila but in no way did it exclude the vertical integration of the companies. The above specified settlement was changed in 2015 (CA Decision no. 6/2015) on the merger of Skipti and Siminn. It nevertheless to some extent lessens the impact of vertical integration that lease of local loops takes cost into account according to the rules and is subject to surveillance by the PTA, and that the PTA plans to prescribe that the Siminn Group withstand and ERT test regarding the fibre-optic products of the Group, and such an obligation should impose a level of restraint with respect to pricing, both at wholesale and retail levels.

8.4.10 Conclusions concerning entry barriers in the relevant market

1117. In this connection, various access barriers and the scope of electronic communications networks in this country, are taken into account. Sales and marketing systems are also important, and whether the electronic communications company in question can offer the same customers varied service because of access to a broad product offer, i.e., economy of scope, etc. are taken into account.

1118. One must consider it clear that if the company intends to enter the relevant market and develop service on its own access network, then it needs to develop facilities that are difficult to duplicate. It is not only necessary to incur substantial costs in developing a distribution system and infrastructure but also it can prove very problematic to find space for hosting the company's equipment.

1119. Shortage of facilities is not normally a problem for Mila today according to the company, and in addition to this, available space will increase with the decommissioning of the voice telephony system in the coming years. For this reason, shortage of facilities in premises is not considered to be a barrier to competition, given that obligations for access, are in force, but it could be an access barrier if obligations were not in force.

1120. For new companies planning to develop their own access system, one must consider that sunk costs from the investment represent a significant entry barrier. This particularly applies at locations where more than one system has already been installed, i.e., copper network and one or even two fibre-optic networks.

1121. Mila, which is part of the Siminn Group, enjoys economies of scale and scope that competitors cannot foreseeably match during the lifetime of the analysis. It is inevitable that new companies on the market would find it difficult to compete under such circumstances and this creates a significant barrier to entry.

1122. The PTA considers that access to capital, which must be patient in a sector like this, will always be a limiting factor because of how costly and time-consuming it is to enter and become a viable participant on the local loop market. This is considered to be a significant entry barrier to the relevant market.

1123. It is the opinion of the PTA that possibilities for growth have significantly diminished since the last analysis and that they will be meagre during the lifetime of this analysis. This is

among other things because of how distributed the fibre-optic connections are in the most populous and densely populated communities.

1124. Mila's extensive service systems can give the company an advantage over new companies, and they call for these companies having such systems.

1125. The PTA believes that Mila enjoys vertical integration as part of the Siminn Group and that this is to some extent an entry barrier.

1126. It should be noted that entry barriers are lower for companies that plan small local distribution. A number of municipalities and/or companies have deployed access networks with state aid and are already operating in the countryside. Such networks are mostly owned by local municipalities and/or utility companies and to a limited extent have been developed on competitive grounds. This aside, Mila has been purchasing many of them in recent times, leasing them long-term, deploying them with state aid or at least providing bitstream service over them. These local loop networks will however never have a significant impact on the market, except possibly on a very local basis and in addition to this they will not enjoy economies of scale and scope. When the project Iceland Optical Connected ends in the year 2022 or 2023, there will be something over 6,000 spaces in the most sparsely populated communities that are connected, of something over 160,000 connectable spaces in the country, which represents 4% of connectable spaces in the country. Mila has now gained control over approximately 1,600 of those spaces. The PTA believes that the entry of smaller companies in sparsely populated communities does not have significant impact on the market as a whole.

1127. The PTA concludes that barriers exist for new companies entering the relevant wholesale markets, which strengthen Mila's position on the relevant market.

8.5 Competition on the market in question

1128. The main objective of the market analysis is to investigate whether competition is active on electronic communications markets and to react to this with appropriate measures should it prove not to be the case.

1129. In the analysis of the wholesale market for local access with fixed connection (Market 3a) one can identify five factors that decide long-term profitability of companies. These factors are:

- 1) Countervailing buying power of purchasers with a strong position
- 2) Product diversification/bundling
- 3) Potential competition
- 4) Pressure from substitute products and
- 5) Customer choice and potential switching costs/the effects of binding contracts

8.5.1 Customer countervailing buying power

1130. Buyers with a strong negotiating position can influence competition and can limit sellers' possibilities to operate without taking into consideration competitors and customers. A strong

negotiating position exists primarily when a customer buys a large portion of an operator's production, is well informed of other offerings, can switch to another operator without significant expense and even has the potential to commence production of a comparable product/service.

1131. When one has in mind that Mila local loops are mostly used in self-supply for the company's bitstream system, where Siminn is by far the largest purchaser, it is unlikely that other smaller customers can limit to any significant degree Mila's ability to operate without consideration for its customers (other than Siminn) to a greater or lesser degree. With respect to the retail market and to users, large users, that is to say those that have many local loops into a building, have a certain countervailing buying power which possibly affords them a discount from the normal retail price. On the other hand, Mila is not to any significant degree dependent on companies on the retail market because Siminn is the company's largest customer with about 70% of total Mila revenue coming from Siminn, and this diminishes the countervailing buying power of other customers.

1132. At the same time almost all of GR local loop leasing takes place within the company. GR generally does not offer other parties' direct access to its local loops¹⁵⁴, but owns itself all the equipment that is connected to their local loops and sells access to bitstream. The company itself is thus in reality its only customer on the local loop market, i.e., self-supply between operational units. On the other hand, GR does not operate on the retail market for electronic communications services and in addition to this it only has 36% market share with reference to the number of local loops in use at the end of year 2020, which means that in this respect GR and Mila are quite different, and at the same time, GR had 57% market share. For some considerable time, GR sold connections to its fibre-optic system directly to consumers without any other service, but now this is done through service providers who service the users in question on the GR system. The company therefore no longer has direct transactions with users in this regard.

1133. It is clear that a customer only has significant countervailing buying power on the local loop market when he has the possibility of dealing with a minimum of two companies for local loop lease. This is however not possible in large regions of the country in the current circumstances.

1134. The market in this country is thus characterised by this self-supply. Siminn is by far the largest purchaser of Mila local loops. Countervailing buying power of purchasers with such a large share in a seller's total sales would under normal circumstances be considered undesirable. One must on the other hand consider the circumstances of Siminn and Mila and the fact that together they comprise the Siminn Group and there is an incentive for the Group to service customers both at wholesale and retail level. For this reason, one should not conclude that countervailing buying power of independent customers vis-à-vis Mila is substantial.

1135. The situation is similar with the lease of local loops at GR which is almost exclusively for self-supply as access to local loops is generally not sold separately with that company, although there are examples of this to certain larger companies, as previously stated. GR does not operate directly on the retail market as does the Siminn Group, as the situation is such that most GR connections are used for broadband service that parties such as Vodafone, Nova and Hringdu sell on to users. On 25 August 2021, Siminn commenced selling connections on the

¹⁵⁴ The company has only leased access to dark fibre on the corporate market, but not on the residential market.

GR network. In the opinion of the PTA, this will be to a rather small degree during the lifetime of the analysis and Siminn will continue on the Mila local loop network.

1136. The PTA considers that Vodafone countervailing buying power vis-à-vis GR is very significant, as the majority of Vodafone connections are on GR systems today, and Vodafone purchased about [...] of the connections that GR sold as of end of year 2020. Vodafone is the second largest retailer in the country with about 28% market share at national level as of end of year 2020, and with a significantly larger market share than that in the GR operational territory. [...]. It is not possible to exclude such changes during the lifetime of the analysis.

1137. The relevant market is thus characterised by a considerable volume of self-supply as there is a very small part of all local loop connections in this country that are not used for bitstream service provided by the relevant company itself or by the company Group.

1138. The PTA conclusion is that purchaser countervailing buying power, that is to say of other electronic communications companies than Siminn, is subject to limitations vis-à-vis Mila, because of the special position of that company resulting from its ownership relationship between Mila and Siminn and from the very substantial transactions between these companies. The large share held by Siminn in retail also generally weakens customers' position. On the other hand, Vodafone countervailing buying power is very significant vis-à-vis GR.

8.5.2 Product diversification / bundling

1139. Product diversification refers to how the consumer defines products and distinguishes between similar products. Clear product diversification in a company's offer can create fidelity in customers and can equally complicate entry for new parties into the market, contrary to what happens when the product offer is more homogeneous. Strong brand names have a comparable effect.

1140. A company that is dominant on one market can leverage its position to bundle products on that market with products on another market with offers that competitors have difficulty emulating. If competitors do not have the possibility of making comparable offers, then this strengthens the dominant position of the company on the former market and creates a competitive advantage on the latter. An advantage of this kind may need to be examined when market strength on the latter market is assessed.

1141. Mila has the special position on this market of being related to Síminn, which is ubiquitous on the market in this country and has a trademark developed over decades, as a company that had a monopoly in most areas of electronic communications for a long time. In this instance Mila has a good position but one has to keep in mind that the relevant market is a wholesale market where one can assume that the strength of a trademark is not as important as on the general consumer market.

1142. With the CA Decision no. 25/2020, the Authority came to the conclusion that Siminn had breached the provision on bundling in the settlement between the company and the CA from 2015, by marketing English football through the Heimilispakkinn. The Appellate Committee for Competition confirmed that part of the case with Ruling no. 1/2020, on 13 January 2021. One could also point out that with PTA Decision no. 10/2018, which was mainly confirmed by the judgement of the District Court of Reykjavík on 1 July 2020, the conclusion was reached

that Siminn had in an unlawful manner directed the business of customers of its media provider to a related electronic communications company, i.e., Mila.

1143. Siminn bundling in retail service on the Mila access network strengthens Mila's position significantly on the relevant wholesale market and is considered to be a barrier to new parties being able to get a foothold in the market for fixed access networks.

8.5.3 Possible competition

1144. This criterion is decided by the opportunities new companies have to enter the market. Should they have opportunities to enter the market, this can impact tariffs and price structure of incumbent companies and can also limit their possibilities to maintain higher prices and can support innovation. If new competitors can be expected to enter then this will lessen the tendency of incumbents to abuse their market power. It is necessary to examine this criterion from the point of view of access barriers (see Section 8.4). There is normally a correlation between entry barriers and a lack of potential competition.

1145. When new companies enter a market, the reason is often that they aim to acquire incumbents' market share and profits. This risk exercises constraint on incumbents and competition to which they try to react in some way or another. One example of this is their endeavours to increase economy of scale and reduce unit costs. Increased variety in the form of quality or trademarks is also a measure to counter competition. High investment costs provide resistance, particularly where they involve reinvestment in existing assets (switching cost). In addition to this, limited access to the distribution channels can be problematic for competitors. Companies who are the first ones on the market can often leverage their experience and knowledge as an advantage over competitors who come later. Access to resources (for example frequencies), government action and technical changes can also impact the ability and interest of new companies to commence operations.

1146. As has been stated here above, the PTA considers that a new local loop system would require considerable investment which would be to a great extent sunk, particularly if the intention is to achieve economy of scale and market share on the relevant market. Economies of scale and concentration, which characterise access systems and apply particularly to the Mila access network, increase entry barriers for new companies.

1147. The PTA concludes in this matter that there is little likelihood that new parties will enter and commence competition with existing network operators on the local loop market, particularly at a national level, except possibly small local electronic communications companies or state-aid networks. Many local fibre-optic networks have been deployed for the purpose of providing residents in the relevant area with access to fibre-optic. They generally have no plans for further development of a nationwide network in competition with Mila. In addition to this there is nothing to indicate that other network solutions like wireless connections will change much in the near future. Possible competition with Mila at a national level is thus not on the horizon during the period of validity of this analysis. It is more likely that the development will continue to be such that Mila will purchase local fibre-optic networks if they are available and increase the density of their fibre-optic network, both in areas where others have deployed fibre-optic and in areas where no one has yet deployed a fibre-optic network.

8.5.4 Pressure from substitute products

1148. One can assume that on markets characterised by significant innovation, it is more difficult for companies to maintain and leverage their market power than on markets where there is little innovation. Technical developments that result in substitute products on the market can thus function as potential competition with incumbent companies and can weaken their dominant market position.

1149. Substitute products were discussed in Section 4.2.7 here above, where it was stated that despite the fact that various new technologies had emerged in recent years, there were still no other products belonging to the market than copper and fibre-optic local loops.

1150. In this country there is a widely distributed copper local loop network and significant development has taken place in installing fibre-optic local loops. For this reason, one can consider the relevant market to be mature in the understanding that a significant increase is not expected in the total number of local loops of the types existing today, though one can expect the development to continue where copper local loops gradually decrease and are replaced by fibre-optic local loops. In the opinion of the PTA, copper local loops will still be in place at the end of the lifetime of this analysis in considerable numbers.

1151. Nor is there any indication that there are other solutions on the market that fulfil the requirements made by the market for local loops, other than the existing copper lines and fibre-optic.

1152. The PTA believes that there is no pressure on the market from potential substitute products and that it is unlikely that this will change significantly during the lifetime of the analysis.

8.5.5 Customer choice and potential switching costs/the effects of binding contracts

1153. If a service provider has a dominant market position, limitations or costs to consumers of switching provider company can enhance that provider's opportunities to behave without concern for the market. Such limitations can be commercial, technical or financial in nature, but they can also be a consequence of the user trusting established service providers more than new ones and being unwilling to take the risk of switching providers.

1154. One has to take into account the fact that in large areas of the country Mila is the only network operator that service providers can deal with. It is also a fact that despite the development of new networks, Mila has had its system in use since the inception of Internet use and it is thus inevitable that most service providers have taken this into account and tried to adapt their systems from the start to access Mila's copper network, and later to the company's fibre-optic network.

1155. To replace systems in order to be able to transfer to another network, such as connecting to fibre-optic local loops, can be costly and time-consuming. Parties to the market have to a large extent avoided this by dealing with GR, which sells them bitstream access to the fibre-optic network, which means that the companies do not need to purchase the connection equipment needed to connect directly to their local loops. One must however keep in mind that with this, the companies descend in the value chain and the control they have over the service they provide diminishes.

1156. The PTA believes that because of the long history and scope of the Mila local loop network, where the company is also the only one on the market, Mila has a certain competitive advantage in this respect. One can also note that, according to the PTA consumer survey, Siminn customers are less likely than those of other service providers to switch and vice versa, and as previously stated, the large majority of Siminn customers are on the Mila local loop network.

8.5.6 Conclusions on competition on the relevant market

1157. Copper local loops were, until 2019, the most common access form of network connections in use in this country. At the end of 2020, the situation was such that the proportion had dropped to 36% against 64% for fibre-optic. It is clear that Mila's position on the market is still very strong because of the copper network with national coverage and an extensive fibre-optic local loop network, particularly when one takes into account the impact of bundling of services from Mila and its parent company Siminn. At the end of the year, Mila had 57% market share, while its largest competitor, GR, had 36%. As has been previously stated, Siminn is ubiquitous on the market and is one of the country's oldest trademarks and in addition to this Mila controls the country's only local loop network, which has close to national coverage.

1158. Buyers with a strong bargaining position can impact competition and seller operations in a variety of ways. In this country however it cannot be said that buyers' countervailing buying power is strong against Mila. The largest part of all Mila sales goes to Siminn, i.e., 70% of Mila revenue, and Mila is a subsidiary of Siminn. This high proportion, along with Siminn's strong position on the retail market, makes it possible for Mila to be more independent of other buyers than would be the case if unrelated parties had such a large share of their business in local loops, in addition to other services such as leased lines, bitstream and facilities. The PTA however considers that Vodafone has significant countervailing buying power vis-à-vis GR. In addition to this, there is an incentive with vertically integrated companies like the Siminn Group to service users, both at wholesale and retail level. This comes among other things to light when one considers Siminn's emphasis on sale of the Heimilispakkinn and the company's success in this connection.

1159. Access to the GR local loops is considered to be sale within the same company (self-supply). GR leases access to bitstream to service providers in wholesale (in most instances to Vodafone), which takes a fee from users for general bitstream service, and in addition collects a fixed fee for access to the local loop. This fee was formerly collected by GR itself, but now it is collected by GR customers, so consumers no longer make payment directly to the company. GR income from local loops and bitstream is therefore collected by service providers directly from end users. This is in reality parallel collection of charges, that is to say the same service provider leases at the same time both local loop and broadband access, and GR operates at wholesale level and its situation is therefore not comparable with the Siminn Group.

1160. The relevant market is characterised by most sales on the local loop market being in fact self-supply to its own bitstream service and the development has tended towards increased use of this kind. The PTA therefore concludes that external customer countervailing buying power is not substantial on the market, except that of Vodafone vis-à-vis GR, which is significant in the opinion of the PTA.

1161. Competition on the market is largely controlled by how consumers define products and distinguish between them. On the market in question, Siminn is ubiquitous and also represents a trademark that has been developed over decades and Mila enjoys the benefits of this. On the

other hand, one must keep in mind that the nature of the market as a wholesale market means that the strength of a trademark does not have the same force as it otherwise would have had. The advantage that Mila has in this respect cannot therefore be considered to be as important as on a consumer market.

1162. The possibilities of new competition are to a large extent limited, particularly at a national level. The possibilities for local companies to establish networks in their home region do however exist at many locations, including where state aid has been obtained. It is not certain whether such local development is feasible on competitive grounds as other considerations often take precedence in such development over the consideration of profit. It is difficult to imagine that such development would be more than in just a few low population areas and would hardly change much with respect to market share in the country as a whole. The PTA thus does not expect there to be significant new competition during the lifetime of the analysis.

1163. The PTA does not expect that the new technology, such as wireless network connections, would be able to replace existing local loops and become a substitute product for them during the period of validity of the analysis.

1164. The possible limitations and cost for purchasers to switch between companies could inhibit competition. This particularly applies where one company has market dominance. In this country the Siminn Group was the only party on the market for many years and is still the only party on the market in large areas of the country. The PTA believes that because of this business history and its extensive business network, Mila has a competitive advantage on this market in this respect.

1165. Competition between companies already operating is characterised in general by the Mila high market share throughout the whole country. All companies that operate electronic communications services need to rely to some degree on Mila and many have made substantial investments in work and equipment to connect to Mila's systems. To switch service provider can thus be both costly and time-consuming and there is the additional risk that services will be curtailed for some time. Mila thus enjoys an advantage from having been on the market for a long time and from the fact that many companies have business commitments to Mila. In addition to this, self-supply very conspicuous with Siminn being the largest buyer.

1166. The conclusion of the PTA market analysis of the relevant market is that Mila, along with its parent company Siminn (Siminn Group) has competitive dominance on the relevant market. The company's market share, its size and position are the reasons for this. It is also the view of the PTA that there are access barriers for new companies entering the relevant market.

8.6 Assessment of SMP on the relevant market (Market 3a)

8.6.1 General

1167. Assessment of SMP is based on the ESA Guidelines on market analysis and on the various influencing factors discussed here above. In accordance with the text of paragraph 76 in the ESA Guidelines and taking into account existing market conditions, the PTA bases its assessment on analysis of the relevant markets as they are today and having taken into account development in recent years and prospects in the near future.

1168. In paragraph 1 of article 18 of the Electronic Communications Act no. 81/2003 the following is stated: *An undertaking shall be deemed to have SMP if it, either individually or jointly with others, holds a position of economic strength on a certain market which enables it to prevent effective competition and to operate to a substantial extent without concern for competitors, customers and consumers.*”

1169. This is an important point of departure in the market analysis and PTA wishes to emphasise that the existence of SMP is the appropriate measure, not abuse of a dominant position. Therefore, the core of the market analysis is not whether an undertaking has misused its dominant market position or not. This does not mean, however, that an undertaking’s behaviour in the market does not make any difference in the assessment of SMP. Even though aspects of the market structure weigh heaviest, practices which support SMP, or that maintain the competitive advantage of a company with SMP, can reduce competition on the market.

1170. As is stated 8.2 in Section here above, assessment of market share is on its own not sufficient to decide on whether an undertaking should be designated with SMP on the relevant market. There must be very strong arguments for a company with over 50% market share to be considered not to be in such a position. As stated there, Mila had 57% market share nationwide on the relevant market. To remove all doubt, it is appropriate to examine all appropriate factors in this connection. A decision on designating an undertaking with SMP cannot generally not be based exclusively on one criterion, but rather it has to be based on a number of criteria and on interactions between them.

1171. An undertaking can be designated as having single dominance or joint/collective dominance. If the conclusion is that one undertaking has SMP then one normally does not need to consider the question of joint dominance. If on the other hand the conclusion is that no undertaking has SMP on its own, then one must examine whether the circumstances pertain for joint dominance. In addition to this, an undertaking that has SMP on the relevant market, can also be considered to have SMP on a related market if the connections between the markets are such that the company can leverage its market strength on one market in order to increase its market strength on the other, see Paragraph 2 of Article 18 of the Electronic Communications Act.

8.6.2 Designation of an undertaking with significant market power

1172. On the relevant wholesale market, Mila (Siminn Group), GR and Tengir have a combined 98% market share, and in addition to these companies, there is a number of local access networks in place where municipalities have taken the initiative to deploy such networks with state aid in most instances, and also small local electronic communications companies like Snerpa and the West fjords and Austurljós in East Iceland. The small local networks have less than 2% combined market share on the relevant market and in most instances only offer open access to their fibre-optic local loops (dark fibre). Mila has however been purchasing many of these networks, leasing them long-term or deploying them with the help of state aid, and one can expect this development to continue. There is thus significant concentration on the market, as Mila had 57% market share, GR, about 36%, Tengir something over 5% and others with about 2% market share at the end of 2020.

1173. A company’s market share is an important factor in market analysis. It is however not the only factor that decides whether an undertaking is designated as having SMP, but it can

give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to accepted case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the Guidelines, a suspicion that single dominance exists with one company does normally not arise until market share has reached at least 40%. A company with market share of less than 25% would in all likelihood not be considered to have dominance, except in the case where it had joint/collective dominance with others. According to this, the Mila market share is well over the 50% guideline which indicates its SMP on the wholesale market for local access with a fixed connection. Despite the fact that the Mila market share has diminished somewhat between analyses, it would be the PTA's view that during the lifetime of the new analysis, Mila would maintain a market share of over 50%. Apart from this, Mila is a subsidiary of Siminn and thus part of the Siminn Group, which forms the largest electronic communications company in the country, and which is vertically integrated and thus operates both at wholesale and retail level.

1174. It was stated in Section 8.2 that market share does not, on its own decide whether an undertaking has SMP but there is considered to be a *prima facie* likelihood that a company with more than 50% market share has market dominance. A market share of about 57% at end of year 2020, a lack of substitute service, size and profitability, along with the access barriers that other companies must face on the relevant market that are described here above, indicate decidedly that Mila has SMP on the relevant market.

1175. Here above in this section and in Section 4.2 on definition of relevant service market, there was discussion on the competitive position of companies on the relevant market. It was stated there that local loops are still limited to fixed line connections and must be laid underground and that despite various innovations and developments on the market since the publishing of the market analysis in force from 2014, there are still significant barriers facing electronic communications companies that wish to establish themselves on the relevant market. The access barriers that mainly face new companies are barriers such as control of infrastructure difficult to duplicate, sunk costs, economies of scope and scale, access to capital, barriers to growth, developed service systems of the dominant parties to the market and vertical integration, and one must view Mila and Siminn, as a single economic unit in the understanding of competition law with respect to the market analysis. In the light of this and because of how extensive and large the Mila system is, along with the substantial cooperation with its parent company Siminn, one can assume that the company can maintain its strong position on the wholesale market for fixed access network against competitors during the lifetime of this analysis.

1176. On the basis of the above and the conclusion from the analysis of the relevant market for wholesale access to network infrastructure at a fixed location it is the conclusion of the PTA that competition is not active and that the companies Mila and Siminn (Siminn Group) have SMP on the relevant market, see Paragraph 1 of Article 18 of the Electronic Communications Act. In the light of the above, the PTA designates Mila ehf. and Siminn hf. as having SMP on the wholesale market for local access with a fixed connection (Market 3a).

1177. With the above conclusion in mind, the PTA does not consider any need to discuss the question of joint market dominance.

9 Analysis of SMP on the wholesale market for central access provided at a fixed location for mass-market products (Market 3b)

9.1 Introduction

1178. When the relevant service market and geographic markets have been defined, the next step is to analyse competition with regard to those factors that influence market power in order to find out whether the power of one or more companies is significant such that the company or companies be designated as having SMP and appropriate obligations be imposed on it or them in order to endeavour to solve identified competition problems on the market in question. The factors that are used to measure market power depend on the characteristics of each market and it is in the hands of the relevant NRAs to evaluate which factors shall be examined in each instance. In the Guidelines on market analysis¹⁵⁵ one can find a list of the criteria that can be used when assessing SMP and the criteria that the PTA considers important will be discussed here below. The list published in the guidelines is not exhaustive and the PTA is authorised to add other criteria to the list that could apply.

1179. In the PTA analysis which was published with the PTA Decision no. 21/2014 on 13 August 2014, the analysis of the market was revised from the previous analysis from 2007¹⁵⁶ and the market is now defined as technical neutral in accordance with the ESA definition from 2008, where previously the market was mostly limited to copper local loops which were entirely the property of Mila. In the analysis here under discussion, the PTA applies the market as it was defined in the ESA Recommendation on relevant markets from 2016, i.e., Market 3b. The very substantial increase in bitstream service through fibre-optic local loops in this country during recent years means that when assessing market power of the party in question, one has to take into consideration development in central access networks.

1180. The market here being examined is the wholesale market for central access provided at a fixed location with mass-produced products (Market 3b). In Section 3, the retail market connected to the local loop market was covered and it is necessary to understand how these markets are connected and how circumstances on the retail market impact the wholesale market.

1181. As is stated in Section 7.7 here above, the wholesale market for central access at a fixed location for mass-produced products, which is here under discussion is defined as one geographic market and this analysis takes this conclusion into account.

¹⁵⁵ See Chapter 3.1 in the guidelines.

¹⁵⁶ Market analysis published on 18 April 2008, see PTA Decision no. 8/2008.

1182. The main companies involved in deployment and operation of central access provided at a fixed location for mass-market products are Míla,¹⁵⁷ GR,¹⁵⁸ Tengir¹⁵⁹ and Vodafone.¹⁶⁰ The scope of other system operators is negligible at a national level. There one could mention fibre-optic systems of Snerpa in the West Fjords and of Austurljós at Egilsstaðir and surrounding areas in East Iceland, apart from the very many local countryside networks that have mostly been deployed by the municipalities in question in the most rural areas, with state aid. These small local networks are generally operated without bitstream equipment on their fibre-optic networks, but they rather make an agreement with a party like Míla, and in some instances with Tengir in this respect.

1183. Míla offers xDSL wholesale service for central access provided at a fixed location for mass-market products (bitstream service), mainly VDSL, on its own nearly nationwide copper local loops network and also GPON bitstream service on its own fibre-optic network in the Capital City Area and on both its own networks and on networks of other parties at many locations in the country. The company has deployed a substantial number of fibre-optic local loops in the Capital City Area and at many locations in the countryside during recent years and has increasingly leased access to local networks owned by Tengir and individual municipalities, and in addition to this the company has deployed fibre-optic networks in rural areas with the help of state aid or has purchased such networks or leased them long-term. GR solely operates a P2P bitstream system on its own fibre-optic local loop network in the Southwest part of the country, mainly in the operational territory of its parent company OR, from Borgarnes to Hella. GR bundles such bitstream service with the company's sale of products on the wholesale market for local access with a fixed connection, i.e., Market 3a (self-supply). On the residential market, GR only sells these services together, while on the corporate market GR sells access to Market 3a without bitstream service, to some extent.

1184. Tengir has developed a bitstream fibre-optic access network and bitstream service in Akureyri and neighbouring areas and the company leases access to its P2P network where its main customers are the companies Míla and Vodafone. Tengir services the operations of a few countryside municipal networks that have been deployed with state aid where it provides its bitstream service, see among other things, the fibre-optic networks of Tjörneshreppur and Fljótisdalshreppur. Tengir has also purchased the Skútustaðahreppur fibre-optic network in Northeast Iceland.

1185. The electronic communications company Snerpa, which operates in the West Fjords and Austurljós in East Iceland have developed local fibre-optic networks in recent years and provide bitstream service over those networks. Snerpa furthermore operates a bitstream system on Míla fibre-optic local loops in its operational territory. The development of the above

¹⁵⁷ Míla is a 100% subsidiary of Siminn and together they belong to the Siminn Group, which is the country's largest electronic communications company. In the PTA discussion reference is variously made to Míla, Siminn or Siminn Group, depending on which is considered to be the most descriptive on the basis of the fact that the companies are one economic unit. The division of tasks between Míla and Siminn is delineated by the Siminn Settlement with the Competition Authority in 2013 as amended in the year 2015.

¹⁵⁸ Gagnaveita Reykjavíkur (GR) is fully owned by Orkuveita Reykjavíkur (OR).

¹⁵⁹ Tengir is owned by a company comprising management and related parties (G&B ehf. 62%) and Norðurorka hf. (38%).

¹⁶⁰ Sýn (previously Fjarskipti), which is called Vodafone in this analysis, came into existence in its current form after the purchase by Fjarskipti, the parent company of Vodafone, of the main assets and operations of 365 miðlar in 2017. The purchased assets were among other things telecommunications, TV and radio operations of 365 miðlar and the web medium Visir.

specified companies, particularly of Austurljós, is in the early stages and it is not expected to make great progress during the lifetime of this analysis.

1186. Vodafone operates its own bitstream system on the Mila copper local loops using ADSL technology and has been deliberately winding down the operation of the system during recent years. Instead of this, the company has resold VDSL connections from Mila, and in addition to this, Vodafone is the largest purchaser of bitstream service on the GR fibre-optic access networks, but to a lesser degree of the Mila fibre-optic access network. Vodafone wholesale on the bitstream market is now within 1% of the total number of connections at end of year 2020.

1187. As previously stated, many smaller fibre-optic networks have mostly been developed in rural areas by municipalities and by Mila and Tengir during the past years. These are small local networks that are mostly serviced by Mila and Tengir. Mila has furthermore recently been purchasing or ensuring long-term control over many of these networks and services the operations of a number of others, which includes providing bitstream service on them. Mila has some kind of involvement with a total of 51 such countryside networks, while the number of municipalities in the country is 69¹⁶¹. There is not only a difference in technical topology of these networks, but they also differ in size and distribution, while Mila has a combined much larger and more distributed access network if one looks at both copper and fibre-optic local loops. The historical position of Mila and of the Siminn Group is still very strong as has been shown previously. Mila controls all copper local loops in the country, and they reach nearly all citizens, and the company has an access network that is considered to have close to national coverage with regards to households and companies, who have the option of a broadband connection through copper local loop. Those households that do not have this are variously connected with radio connections at market rates, or they are covered by funding from the Telecommunications Fund for local deployment of fibre-optic access networks.

1188. With respect to wholesale, the PTA has examined possible demand-side substitutability in connection with the GR fibre-optic network and of other smaller companies and has come to the conclusion that it does not exist except locally and is not sufficiently widespread to be a real option for quite a number of customers. With respect to other substitutability possibilities, they are hardly discernible and are subject to substantial limitations. Discussion here will therefore be limited to bitstream service over copper and fibre-optic local loops.

1189. Mila (previously Siminn) has for a long time had a strong position on the wholesale market for bitstream over its copper local loops, but in recent years has considerably increased its supply of fibre-optic local loops, particularly in the Capital City Area, in Akureyri, Húsavík, Árborg, Reykjanesbær and widely elsewhere. At most locations outside the Capital City Area¹⁶², where fibre-optic networks are not owned by Mila, the company has installed GPON equipment to provide bitstream service through fibre-optic networks owned by others, e.g., municipalities and Tengir.

1190. As is stated in Section 3 here above, Mila broadband connections have mostly been made through an xDSL system over copper local loops during recent years. It is also stated there that since the publication of the last analysis there have been some changes in the offer of technology that can be used to transmit bitstream. Both fibre-optic and the VDSL systems have established themselves on the market in recent years. A large increase in VDSL connections,

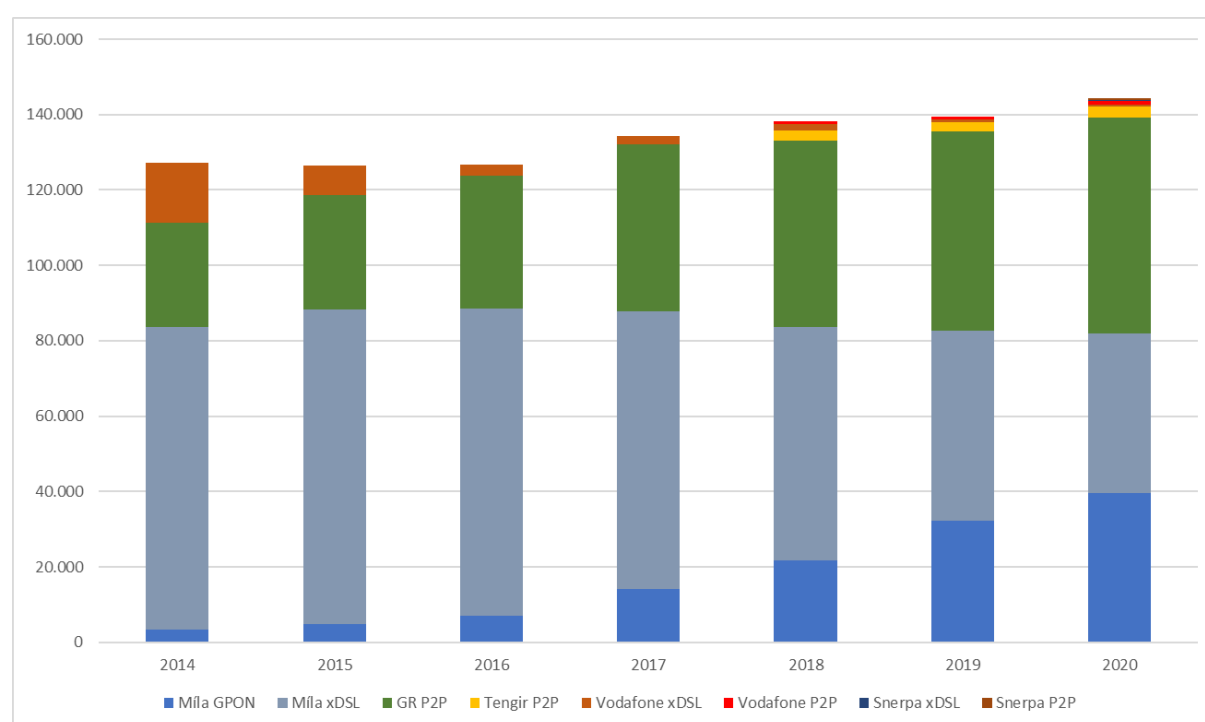
¹⁶¹ See further the discussion in Sections 6.3 7.3 here above on the distribution of electronic communications networks, planned distribution and network topology.

¹⁶² Does not apply to the GR fibre-optic network.

which peaked in 2015, has significantly declined since then, i.e., from 113,884 at the end of 2016 to 38,921 at the end of 2020. When one adds 3,303 ADSL connections and 61 SHDSL connections, Mila xDSL connections in use were 42,285 at the same time. Data held by the PTA indicates that the decline has decelerated somewhat in 2020 when compared with for example the year 2019.

1191. During recent years, broadband connections in use over fibre-optic have increased very significantly, mainly at the cost of copper local loops. Figure 9.1 shows this development well and its impact on the number of active connections during the period from 2014 until the end of 2020.

Figure 9.1 Number of broadband connections over network provided at a fixed location by type 2014 to 2020¹⁶³



Source: Post and Telecom Administration.

1192. As can be seen in figure 9.1 the increase of fibre-optic connections has been substantial in recent years, mainly at the cost of xDSL bitstream connections over copper local loops. It is clear that copper local loops remain an important part of the market and will be so throughout the lifetime of the analysis in the opinion of the PTA.

1193. As with local loops, it is remarkable that bitstream connections have not increased much in recent years, despite the very significant increase in fibre-optic local loops. It is thus clear that bitstream connections that use fibre-optic local loops are not simply an addition to the market but rather that they have replaced existing bitstream connections.

¹⁶³ Note: xDSL connections in this figure are first and foremost VDSL connections and other xDSL standards are also included there.

1194. It is clear that the composition of bitstream connections has changed in recent years. In 2020 there were 144,000 active bitstream connections of which something over 101,000, i.e., 70%, of the connections were on fibre-optic networks (P2P and GPON) and 42,000, i.e., 30%, bitstream connections were on the xDSL standard on a copper network. It is expected that broadband connections over fibre-optic network will continue to increase rather rapidly in the coming years with the increased deployment of fibre-optic local loops mostly at the cost of ADSL and VDSL connections.

1195. The market here being examined is the wholesale market for central access provided at a fixed location with mass-produced products (Market 3b). In Section 3.2 the retail market connected to the local loop market was covered and it is necessary to discuss how these markets are connected and how circumstances on the wholesale market impact the retail market.

1196. Here below, the competitive conditions on the relevant market will be assessed with the main influencing factors in mind. Following this, in Section 9.6, there will be an assessment of whether some company has SMP on the relevant market. In this regard, market share, financial strength of market players, entry barriers and competition on the relevant market are among the aspects that are taken into account. Aspects such as sales and service systems, whether the electronic communications company in question can offer the same customers varied service because of access to a broad product offer, electronic communications networks etc., are also important.

9.2 Market share

1197. A company's market share is an important factor in market analysis. It is however not the only factor that decides whether an undertaking is designated as having SMP, but it can give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to accepted case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the guidelines, a suspicion that single dominance exists with one company does normally not arise until market share has reached at least 40%. This depends, however, on the size of the company in comparison with its competitors. In some instances, a company with market share of less than 40% can be deemed to have SMP. A company with market share of less than 25% would in all likelihood not be considered to have dominance, except in the case where it had joint/collective dominance with another undertaking.

1198. Development of market share over a given period of time is also significant in the assessment of whether the company has a dominant market position. Should a company have a non-transitory high market share then this indicates a dominant market position, while on the other hand a fluctuating or falling market share will indicate the contrary. In new and growing markets, a high market share is less of an indication of market strength than on a mature market with slow growth.

1199. It is one of the tasks of the PTA when assessing SMP, to endeavour to predict future market share development during the lifetime of the analysis in question. This constitutes among other things, collecting information on development of market share in recent years and the distribution plans of the main companies on the relevant market and endeavouring to predict development of market share on the basis of the above specified data and on current market circumstances.

1200. In the last PTA, market analysis, which was published on 13 August 2014, the relevant market was defined as technologically neutral. This means that bitstream service over copper and fibre-optic local loops belong to the market as before. It is therefore clear that market share has changed considerably from the above specified analysis because of the increased deployment of fibre-optic networks by Mila's competitors during the period.

1201. The main companies on the wholesale market for central access provided at a fixed location for mass produced goods (Market 3b) are Mila and GR. Then one can mention companies like Tengir and Snerpa, that have low market share on the relevant market. The share of other parties on the market is negligible at national level. Mila is part of the Siminn Group and is fully owned by Siminn, but since 2007 it has been operated as a separate company within the Siminn Group. The company operates an extensive copper, fibre-optic and wireless system which reaches a large proportion of households, companies and institutions in the country. Mila begun organised deployment of fibre-optic to homes and companies in 2016 and at the end of 2020, at least 47% of homes and companies in the country had the option of a fibre-optic connection from that company, and the corresponding figure was at least 64% of homes and companies in the Capital City Area. One can expect this development by Mila to continue during the lifetime of the analysis, both in the Capital City Area and widely across the country. It is worthy of note that Mila has recently been deploying fibre-optic in Reykjanesbær, Árborg, in Akureyri, in Húsavík and at various other locations. The company has in addition, taken over a number of local fibre-optic access networks that have been deployed in recent years, among other things with support from the Telecommunications Fund. Mila furthermore announced plans in April 2021 to commence collection of start-up charges from inhabitants in order to deployment of the common fibre-optic local network in various regions in the countryside. In February 2021, Mila announced plans for fibre-optic deployment in the Westman Islands and at Egilsstaðir in 2021. The main Mila customers who provide electronic communications services to end users through the company's fixed line network are Síminn, Vodafone, Hringdu and Hringiðan.

1202. Gagnaveita Reykjavíkur (GR) is owned by OR and was founded as a private limited company in 2007 but prior to that was a department within OR. The purpose of founding the company was to offer homes and companies access to a high-speed data transfer system through fibre-optic. For some considerable time, GR concentrated on deploying a fibre-optic network to households in the operational territory of OR. About 109,000 households could connect to the GR fibre-optic network at the end of 2020, which is about 67% of all households in the country. GR customers are mainly in the Capital City Area, i.e., the municipalities of Reykjavík, Seltjarnarnes, Kópavogur, Garðabær, Hafnarfjörður, Mosfellsbær, and also Akranes, Borgarnes, Hveragerði, Árborg and other locations. With a new agreement between GR and the municipalities in Reykjanes and Vogar, it is expected that the number of households that can connect to the GR network will be about [...] at the end of 2023.

1203. The main electronic communications companies that provide electronic communications service through GR fibre-optic are Vodafone, Nova, Hringdu and Hringiðan. As has been previously stated, the country's largest retailer, Siminn, does not provide service through the GR network, but pursuant to an agreement between GR and Siminn on bitstream access to the GR fibre-optic network from July 2020, Siminn began providing service over the GR network on 25 August 2021.

1204. Competition between GR and Mila has up to this point in time mainly been between the Mila VDSL service over its own copper local loops and the GR bitstream service over its own fibre-optic. Since 2016, competition between the companies has however increased in those

areas where they both offer data transfer over fibre-optic, i.e., in the Capital City Area and at other locations in Southwest Iceland. The GR fibre-optic network still reaches more homes and companies in the Capital City Area than the Mila fibre-optic network. Distribution of the Mila fibre-optic access network has increased rapidly, where the company has among other things utilised its existing fibre-optic network, which is deployed at many locations from telephone exchanges to street cabinets in the Capital City Area and it has utilised the existing ducts and cable routes of the company's access network. There is also the fact that the Mila deployment plans are much more ambitious than those of GR during the lifetime of the analysis.

1205. The PTA considers that the best way to give a realistic picture of the position and strength of parties on the bitstream market is to use the number of connections in use as a basis for calculating market share in wholesale, rather than turnover figures. For this, there are two main reasons. The first is that the two by far the largest companies on the market, Mila and GR, use different approaches in their service offer and business relationship with users. Mila sells access to local loops with and without active equipment while GR sells general access to local loops with broadband access together. The second reason is that it is difficult to assess self-supply, particularly with GR and other smaller provider companies. This would require estimating turnover in wholesale from estimated information and such calculations are subject to uncertainty. Given the above, it is the PTA conclusion to use the number of broadband connections as a reference in calculating market share on the relevant wholesale market as this is a more exact metric than estimated turnover figures from income from self-supply in wholesale.

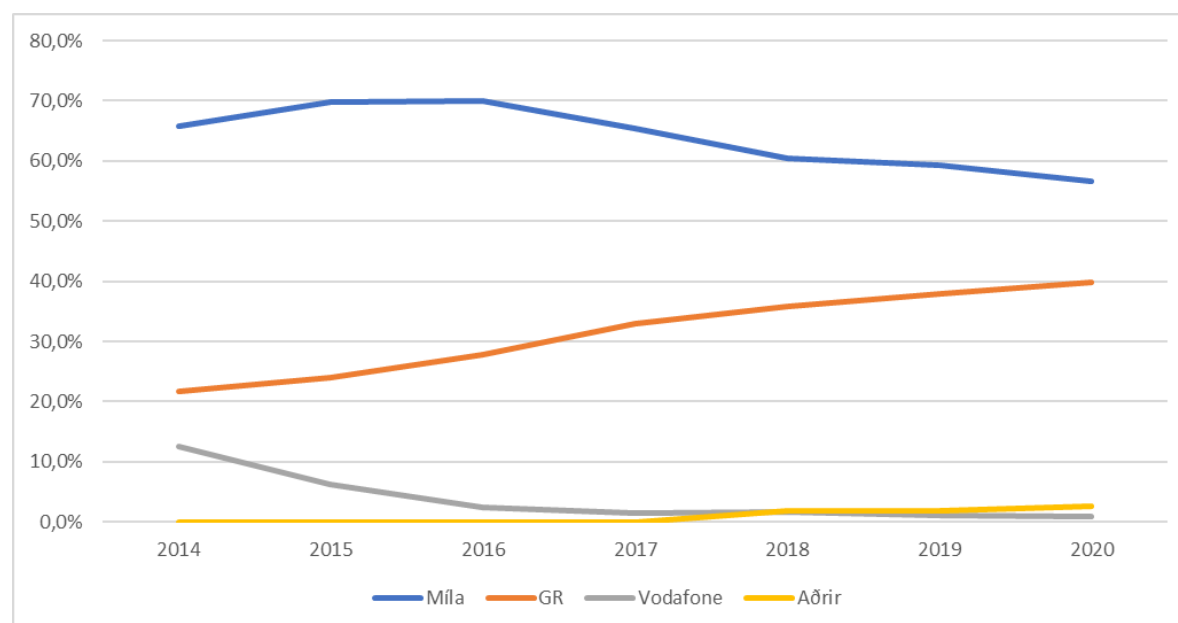
1206. At the end of 2020, there were just over 144,000 copper and fibre-optic local loops in use, of which Mila had about 82,000 connections and GR, about 57,000. Increase in fibre-optic local loops has been rapid in recent years while at the same time the number of copper local loops in use has decreased. In mid-2019 the situation was that the bitstream connections in use were more than connections through copper local loops, particularly because of the recent very significant increase in deployment of fibre-optic local loops by Mila at the same time as there was a significant increase by GR and there was further development of other fibre-optic access networks. During the same period, copper local loops in use declined in number among other things because of the decrease in PSTN and xDSL connections.

1207. Up to the year 2007, Mila and its predecessors had about 100% market share in the relevant market. Since 2007, there have however been changes, and Mila's market share has decreased to about 57% at a national level in mid-2020, compared to share of 65% at the end of 2013 when the last market analysis was conducted. Mila market share has thus only decreased by about 8% over the 7 years, which represents just over 1% per annum. Though the Mila market share has diminished somewhat between analyses, it is the PTA assessment that during the lifetime of the new analysis, Mila will have over 50% at the end of 2023. GR has continued to develop an extensive network in Southwest Iceland and now has about 40% market share at a national level at the end of 2020, which was about 21% at the end of 2013. The Vodafone share has furthermore decreased very significantly on the wholesale market for access provided at a fixed location since the last market analysis, from about 13% to just a negligible share at the end of 2020, and the company has almost effectively decommissioned its ADSL system in recent years and instead leases bitstream connections from GR, Mila and Tengir for its services over a fixed network¹⁶⁴. There has been an increase with Tengir bitstream

¹⁶⁴ In Vodafone comments on the PTA preliminary draft, it was stated among other things that the company's share had declined, subsequent to Mila having begun to define local loops in street cabinets rather than in

wholesale market where the company now has just over 2% share, and the company also leases local loops, mostly to Mila. Other companies that offer broadband access over fibre-optic without the involvement of the above specified electronic communications companies, such as Snerpa and Austurljós, are much smaller in scope and collectively have an insignificant impact on market share up to this point in time and for this reason they are not specifically mentioned here.

Figure 9.2 Number of active local loops by company 2014 to 2020



Source: Post and Telecom Administration.

1208. The PTA considers that bitstream service through GR fibre-optic local loops exerts competitive pressure on Mila bitstream service, both with regards to VDSL over copper and bitstream over fibre-optic local loops. An increase with Mila could have an effect on purchasing behaviour of the company's wholesale customers such that they would rather choose GR or Tengir where the option was available. GR and Tengir are also to all intents and purpose the only real options on the market in question.

1209. When market share is examined, it is also important to have concentration of the market in mind. A common method of measuring concentration on a market is the HHI index¹⁶⁵. The HHI index for market share in this country at the end of 2020 was about 0.49, which indicates a very high concentration.

1210. With respect to market share of companies on the bitstream market one can assert that it is characterised first and foremost by two salient features. On the one hand there is the strong position of Mila on the market and on the other hand there is the high concentration on the

telephone exchanges, as had been the case before, when the company upgraded its connections extensively from ADSL to VDSL. It had then not been possible for Vodafone to acquire space for xDSL equipment in the Mila street cabinets. Vodafone had complained to the PTA, but case proceedings had taken many years. Meanwhile, the Vodafone market share on the relevant wholesale market had declined significantly.

¹⁶⁵ Herfindahl-Hirschman Index. The value of the index lies between 0-1. The higher the value the greater the concentration on the market. If the result is less than 0.1 then action is considered unnecessary. If the result is in the range of 0.1-0.18 then there is average concentration and over 0.18 there is significant concentration.

market (HHI index 0.49). The development has tended towards a declining Mila market share, particularly in the light of the GR development and to a certain extent that of Tengir, but this development is solely in specific areas in South and West Iceland and the North Iceland. The Vodafone market share has furthermore almost disappeared. It is clear that on the basis of information from the electronic communications companies that GR and Tengir development will be much less during the lifetime of the analysis than the Mila fibre-optic development. This is an oligopoly market, and it is not realistic to expect this position to change in the coming years. The GR position could strengthen somewhat on the relevant market if the company reaches an agreement on entry into the Tengir fibre-optic network and/or countryside networks during the lifetime of the analysis, but the PTA finds it uncertain if this will happen. If it does happen, the PTA believes that it will not lead to a significant change in market share of GR and Mila.

1211. The PTA expects the GR access network to continue to grow in accordance with the company plans but will be considerably slower than in recent years. The PTA does not expect the changes to be such that they will threaten Mila's market position during the period of validity of the analysis with reference to the available company plans for extending its fibre-optic access network, though the gap between them may shrink somewhat. It could also have an impact in the other direction if companies like Vodafone and Hringdu were to increasingly migrate from the GR network to the Mila network during the lifetime of the analysis, and the PTA considers this to be not inconceivable.

1212. The PTA believes it to be clear that despite changes having occurred in proportions in local loops where fibre-optic connections have increased significantly in recent years at the same time as bitstream connections over copper in use have decreased, Mila's market share is still very large and the company's position on the bitstream market is also strong at a national level. Though Mila may to some extent phase-out copper local loops in the coming years, this phasing out will mostly take place subsequent to the lifetime of the analysis given the 10-year plan that the company announced in the autumn of 2020.

1213. Mila had about 57% of all active local loops at the end of 2020, while the next party, GR, only had about a 40% share. Though the Mila market share has diminished somewhat between analyses, it is the PTA assessment that during the lifetime of the new analysis, Mila will have over 50%. The PTA particularly has in mind that the Mila VDSL rollout on its almost nationwide copper network, which is mostly completed, strengthens Mila's competitive position on the local loop market across the whole country, and in addition to this, Mila has embarked on major deployment of a fibre-optic local loop network in the Capital City Area and at other locations as well as purchasing or assuring long-term control over local access networks owned by smaller municipalities, or has deployed such networks with state aid. The PTA considers that such development can continue throughout the lifetime of the analysis and Mila announced plans in April 2021 to collect start-up charges from inhabitants in order to expedite deployment of the company's fibre-optic network in various communities in the countryside.

1214. The PTA assumes that despite increased supply by competitors, the Mila position on the market will remain strong throughout the lifetime of the analysis. It is expected that the Mila market share will decline by about 1- 2% per annum in the coming years, if one considers development of recent years and the development plans of parties to the market. Given that development, one can be of the opinion that the Mila share will be over 50% during the lifetime of the analysis.

1215. The PTA bases its assessment on development of market share during the coming years, on the deployment plans of the main companies and on predictions on uptake, and the development of small local, state aided networks and Mila plans for decommissioning the PSTN system and the first steps in decommissioning the copper network. The PTA furthermore takes into account the agreement between GR and Siminn from July 2020, which came into force on 25 August 2021, and it is clear that all things being equal, the Mila market share will decline somewhat in the coming years because of the agreement. Market share of the main companies on the markets during recent years is furthermore taken into account, see figure 9.2 here above. The Mila market share was 57% at the end of 2020, while GR had 40% share. Mila market share was 65% in 2013. Mila market share has thus only decreased by about 8% over the 7 years which represents just over 1% per annum. Increased GR market share has not least come from Vodafone, which now hardly operates on the wholesale market. Development is towards fibre-optic local loops increasingly replacing copper local loops, but this will not have a definitive impact on market share during the lifetime of this analysis. There are indications that the decline in Mila market share may slow down in the coming years, among other things because Mila fibre-optic deployment plans are significantly more wide-reaching than those of other parties to the market. The situation could also rapidly change to Mila's advantage, if companies like Vodafone and Hringdu were to increasingly move their business from GR to Mila, and the PTA considers this not inconceivable during the lifetime of the analysis. For this reason, it is rather difficult to make predictions on likely development with much certainty.

1216. The above specified development, the situation and likely development in market share and a number of other factors that will be explained in the sections here below, supports the designation of Mila as an undertaking with SMP.

9.3 Total size and profitability

1217. The size of the company for example on the basis of turnover or of some other metric, can be important when assessing SMP. If the company is significantly larger than its main competitors, then this can mean competitive dominance. Dominance can be inherent in financial strength, better production methods, cheaper procurement, access to capital, distribution and marketing. A company with longer specialised experience on the market than that of its competitors can create similar dominance, for example in specialised knowledge in technical matters, knowledge of markets and of the legal environment.

1218. Characteristics best suited for comparison are company revenue and profitability on the electronic communications market and economic strength, for example in the form of equity ratio and total assets.

1219. Competitive dominance of the largest company can also be in the fact that its access to capital is easier and also because capital can often be acquired at more advantageous terms.

1220. In general, one can say that financial strength of the largest electronic communications companies, has increased during recent years as Mila, Vodafone and GR have all gone through recapitalisation subsequent to the bank crash of 2008.¹⁶⁶

¹⁶⁶Siminn (Siminn Group) and Sýn (Vodafone) are registered on Nasdaq Nordic which is part of the largest stock exchange company in the world. In December 2019, Siminn market value was about ISK 70.2 billion and the

1221. Mila is a subsidiary of Siminn, who jointly form the largest electronic communications company in the country, the Siminn Group.¹⁶⁷ Siminn retail has most Internet connections, mobile and fixed line telephony subscriptions, in addition to having a very strong position on the data transfer market and on the IPTV distribution and retail TV market, and in providing bundles with the popular Heimilispakki. The above, along with the fact that Mila is the largest company on the wholesale market, including markets for fixed access networks and for central access to fixed connections for mass-market products, could support competitive dominance for the Siminn and Mila Group on the relevant market.

1222. Here follows a comparison of financial key sizes as shown in annual financial statements of the main companies on the Icelandic electronic communications market, which shows financial strength of the Siminn Group ahead of other companies on the electronic communications market.

Table 9.1 Overview of operations of the main companies on the electronic communications market 2019

Operation	2019 Síminn consolid.	2019 Thereof Mila	2019 Sýn consolid.	2019 Nova	2019 GR	2019 Orku- fjarskipti	2019 Tengir
Total revenue	29,071	6,315	19,811	10,301	3,134	496	472
EBITDA	10,516	3,866	5,509	2,678	2,118	230	217
<i>EBITDA ratio</i>	36.2%	61.2%	27.8%	26.0%	67.6%	46.4%	46.0%
EBIT	4,914	1,828	-1,950	1,385	1,222	127	93
<i>EBIT ratio</i>	16.9%	28.9%	-9.8%	13.4%	39.0%	25.6%	19.7%
Cash generated before interest and tax	10,265	3,848	6,304	2,956	2,182	...	204
<i>Cash generated before interest and tax ratio</i>	35.3%	60.9%	31.8%	28.7%	69.6%	...	43.2%
Profit (loss) for the period	3,070	822	-1,748	991	359	88	48
<i>Profit (loss) margin</i>	10.6%	13.0%	-8.8%	9.6%	11.5%	17.7%	10.2%
Investment in property, plant and equipm.	4,200	2,710	1,218	1,083	2,979	189	319
<i>Investment / Total revenue</i>	14.4%	42.9%	6.1%	10.5%	95.1%	38.1%	67.6%

Source: Post and Telecom Administration

1223. Siminn Group total revenue was about ISK 29.1 billion in 2019, followed by Vodafone with ISK 19.8 billion in revenue. If one however only view revenue from electronic communications operations, the Siminn Group has about 46% of total revenue from the electronic communications market and this proportion was 57% in 2012.

1224. The Siminn Group net earnings before depreciation, financial items and taxes (EBITDA) was about ISK 10.5 billion in 2019 and is higher than the combined EBITDA of all other companies on the Icelandic electronic communications market. By comparison, the turnover of GR was about ISK 3.1 billion in 2019, which represented about 48% of Mila revenue, and GR is Mila's main competitor on the relevant market. GR revenue was furthermore something under 11% of total revenue of the Siminn Group.

market value of Syn, which is the second largest electronic communications company in Iceland, was about ISK 11.6 billion at the same time.

¹⁶⁷ Siminn, Mila and Sensa formed in the main the Siminn Group, but Sensa, which operates in the field of information technology, was sold at the end of 2020.

Table 9.2 Overview of balance sheet of the main companies on the electronic communications market 2019

Balance sheet	2019 Síminn consolid.	2019 Thereof Míla	2019 Sýn consolid.	2019 Nova	2019 GR	2019 Orku- fjarskipti	2019 Tengir
Fixed assets	58,571	24,140	25,536	5,993	22,013	2,008	1,466
Current assets	6,950	1,117	6,442	1,841	673	200	29
Total assets	65,521	25,257	31,978	7,834	22,686	2,208	1,495
Equity	36,632	12,261	8,798	4,534	7,969	1,524	523
Long term liabilities	20,268	11,417	16,549	1,367	12,943	591	761
Current liabilities	8,621	1,579	6,631	1,933	1,774	93	211
Total equity and liabilities	65,521	25,257	31,978	7,834	22,686	2,208	1,495
<i>Equity ratio</i>	55.9%	48.5%	27.5%	57.9%	35.1%	69.0%	35.0%
<i>Current ratio</i>	0.81	0.71	0.97	0.95	0.38	2.15	0.14
<i>Net interest bearing debt</i>	16,014	8,010	10,953	134	13,483	264	772
<i>Net interest bearing debt / EBITDA</i>	1.5	2.1	2.0	0.1	6.4	1.1	3.6
<i>Interest coverage ratio EBITDA / Interest paid</i>	8.9	5.1	5.6	24.3	3.2	...	5.7
<i>The weighted average long term interest rate</i>	5.26%	4.76%	4.4%	5.5%

Source: Post and Telecom Administration

1225. Síminn Group equity was ISK 36.6 billion at the end of 2019 and this equity is more than the combined equity of other companies on the electronic communications market. Sýn equity was ISK 8.8 billion at the end of 2019 and GR equity was ISK 8.0 billion at the same time.

1226. If one considers the debt/EBITDA ratio, which is found by dividing EBITDA by interest-bearing debt having deducted cash in hand, then the proportion is 1.5 for Síminn in 2019, 2.0 for Vodafone and 6.4 for GR. The proportion gives investors and/or lenders an idea of how long it will take a company to pay up its debts, without regards to interest, tax, depreciation or amortisation. A high ratio can lead to higher interest and difficulties with loan funding.

1227. Of the companies that own fixed access networks or rent access to them, Míla is the only network that almost covers the whole country. The proportion of Míla revenue of total revenue of the companies operating on the market for central access to fixed connection for mass-market products was just over 60% in 2019 and was 78% in 2012. GR revenue was about 30% of total revenue and was 20% in 2012. Other electronic communications companies jointly had less than 10% of revenue, which is a significant increase from their 2% share in 2012. Míla revenue has thus decreased proportionately from 2012 while GR revenue and that of others has increased at the same time. Míla's position is however still very strong on the wholesale market for fixed access at a national level. One must keep in mind that the company revenue mix on the relevant market is not entirely comparable because of varying operations of the companies in question, but it does give a strong indication of the position of companies on the market.

1228. It is appropriate to point out that GR is fully owned by Orkuveita Reykjavíkur (OR) which is a public sector company mostly owned by the City of Reykjavík. OR is financially very strong in comparison with the above specified electronic communications companies. It should however be noted that, according to Article 36 of the Telecommunications Act, GR shall be separated financially from other OR operations such that it is equivalent to an unrelated company and care should be taken that competitive activities such as GR operations are not subsidised by other operations or are operations which enjoy monopoly or special rights in fields other than electronic communications. The PTA has the role pursuant to the law, to

monitor that electronic communications operations are financially separated from utility operations which enjoy monopoly or special rights in fields other than in electronic communications, and the PTA has for this purpose, imposed various obligations on GR in recent years.

1229. It is the opinion of the PTA that GR does not enjoy in a direct manner the financial strength of its owner OR more than other electronic communications companies from their owners, e.g., from pension funds which are the main owners of Siminn and Vodafone. Variations to financial separation between GR and OR, that the PTA has identified during the duration of GR operations, cannot in the opinion of the PTA be considered significant. With the PTA Decision no. 3/2019, the Administration conducted such an investigation for the years 2016-2017¹⁶⁸. The decision was part of the PTA surveillance of the implementation of financial separation of GR within the OR Group, pursuant to Article 36 of the Electronic Communications Act. The investigation covered the period 2016-2017 and was based on book-keeping and data from operations for these years. It was the main conclusion of the PTA, that financial separation between OR and GR had been in accordance with the provisions of Article 36 of the Electronic Communications Act, with the exception of the provision of a loan to GR in connection with the cash polling of the OR Group. The PTA also raised an objection to the conditions from credit institutions in GR loan agreements with respect to OR ownership of GR. The PTA therefore considered there to be a need to impose obligations on GR for the implementation of financial separation between OR and GR with respect to the above specified issues. The PTA plans in 2021 to conduct an investigation on the implementation of financial separation between GR and OR for the years 2018-2020. The PTA does not have the legal authority to impose penalties on GR for breaches, other than per diem fines. ESA is now processing a complaint from the Siminn Group relating to alleged unlawful state aid in connection with GR behaviour, which was described in the above specified PTA Decision no. 3/2019. In the event of unlawful state aid, GR will probably have to reimburse the support.

1230. Competitive dominance constitutes among other things that Mila enjoys greater economy in operations than other companies in wholesale and is in addition to this, owned by far the largest company in retail on the electronic communications market. This can among other things, be manifested in more economical procurement, in production methods, in distribution and marketing.

1231. When taking into account the size and financial strength of Mila as a system operator on the market for fixed access networks, along with the position of the Siminn Group as a whole on the electronic communications market, it is the conclusion of the PTA that the size of the Siminn Group, profitability and economic strength over and above that of competitors strengthens the Mila position on the relevant market which affords the company a significant competitive advantage.

¹⁶⁸In its prior decisions, the PTA has also imposed various obligations on GR to ensure the financial separation in question and one can in this connection indicate PTA Decisions from 13 November 2006, number 32/2008, number 14/2010, number 25/2010, number 39/2010, number 2/2014 and number 11/2015. One can furthermore indicate rulings of the Appellate Committee for Electronic Communications and Postal Affairs from 21 December 2006, 27 August 2007, number 3/2010 and number 5/2014.

9.4 Entry barriers

9.4.1 General comments on barriers to entry

1232. 'Entry barrier' is a collective name for various factors that can influence companies' market power. If there are few barriers to a market, then possible profitability is an attraction for new companies to gain market share from the incumbents. Potential competition from new parties can influence the behaviour of a company with significant market power and can lessen its harmful impact on competition. Entry barriers on the other hand weaken or prevent competition.

1233. There is a strong relationship between entry barriers and profitability. The more entry barriers that exist, the greater the profitability that can be expected from incumbent companies, which can often be attributed to a lack of competition rather than to efficiency. An ideal situation for an incumbent company is one where there are high entry barriers and low exit barriers. In such circumstances, incumbent companies deter new companies from establishing themselves and companies without profitability will soon give up.

1234. The objective of the PTA market analysis and possible subsequent measures is, as before, to strengthen competition on the relevant market. It is conducted for the purpose of encouraging innovation and development, of enhancing companies' competitiveness and the interests of consumers. One way to achieve this is to limit entry barriers to markets, which can be in varying forms. Here below there is further discussion on the main barriers that are considered to prevent entry of new parties to the market for local loops.

1235. The entry barriers that confront companies on the relevant market are on the one hand to a large extent attributable to the strong position of the Siminn Group, of which Mila is part, and on the other hand to difficulties encountered by new electronic communications companies in creating infrastructure they need to compete on the market. The former category includes control of infrastructure that is difficult to duplicate, economy of scale, economy of scope, access to capital and vertical integration. The latter category can among other things include sunk costs, restrictions to growth and costs for service systems.

1236. Entry barriers usually have their roots in the development and position on the electronic communications market but in some instances, there is a risk that a party with SMP could see an advantage in making it difficult for competitors and delaying their entry to the market, for example by refusing requests for space in telephone exchanges, by setting restrictive conditions on access for repairmen to buildings that house leased facilities and so on. It is important to discuss possible entry barriers on the relevant market and take a position on whether these are real barriers or not.

9.4.2 Control of infrastructure that is difficult to duplicate

1237. When a company has control over facilities that are difficult or expensive for others to duplicate, this can be a significant barrier for its competitors. One example of such facilities is wide-reaching access and trunk line networks. This aspect must be examined in connection with the discussion on sunk costs in Section 9.4.3.

1238. It is possible to reduce investment costs by cooperating on electronic communications structures, that is to say co-location or other sharing of networks. Co-location is for example when new parties locate their equipment in buildings built for that purpose. Savings from this can be significant, particularly in rural areas. Sharing can variously be on the basis of free agreement, agreements reached on the basis of an obligation Pursuant to Article 25 of the Electronic Communications Act or on the basis of obligations imposed for access, pursuant to Article 28 of the Electronic Communications Act.

1239. The development of new bitstream systems is not only a question of access to earth cables, distribution frames, street cabinets and in-house cabling, as premises are also required for system equipment that connects to local loops. When Mila upgraded its copper system from ADSL to VDSL a number of years ago, a shortage of access to Mila street cabinets for example came to light, which led to Vodafone dropping out of the relevant wholesale market. This particularly applies to urban areas where it can be difficult to find a suitable location for such facilities and the attendant costs are substantial.

1240. It is not given that network operators will be granted permission to excavate for new local loops. In urban areas it is usually necessary to remove existing constructions (such as pavements and roads) before a ditch is excavated. Apart from the substantial costs, this can be inconvenient for inhabitants living nearby. One must thus consider it doubtful that companies will see the advantage in installing the same kind of local loops that already exist in the areas in question much more than has already been done, and in addition to this it could be economically disadvantageous for the nation. It is however not unlikely that Mila will deploy further fibre-optic connections in buildings in urban areas and thus increase the density of the company's fibre-optic network. Municipalities and small local telecommunications companies have however to some extent deployed local access networks. There is no evidence that such networks, with the exception of the development of networks of GR, Tengir, Snerpa and Austurljós to some extent, have been deployed on competitive grounds up to this point in time, but funding for this development has rather been from the municipality in question with the addition of grants from the Telecommunications Fund and from the Regional Development Fund in most instances. In recent times, the Competition Authority has granted Mila and GR on the one hand and Mila and Tengir on the other hand, permission to share civil works among other things in the Capital City Area in Árborg, in Reykjanesbær and in Húsavík. Such sharing can support further fibre-optic rollout in this country in profitable areas.

1241. In larger areas such as in the Capital City Area there is a lack of facilities for electronic communications equipment at many locations. Mila buildings are now used at some locations and there are obligations on the company for access where there is space, according to the prior decision by the PTA on the relevant market from 2014. This problem will probably diminish when the decommissioning of Siminn PSTN voice telephony system is completed, and this is expected to be in the second half of 2021. GR utilises however to a large extent buildings owned by OR, but there is no access obligation on OR nor GR, and OR offers hosting of equipment to a considerable extent. According to information from GR [...] % of GR connection points are in facilities owned by OR. GR has also leased facilities in Mila buildings to some extent.

1242. As has been previously stated, access to local loops on its own does not ensure normal competition. New parties in the market must also have the option of locating their equipment near node points (for example main distribution frames in telephone exchanges). In some instances, it could be a possibility to locate equipment in other buildings close to the telephone exchange, but more often than not there is no option but to find space for the equipment in the

telephone exchange in question and to ensure access to the equipment for monitoring and maintenance. It can however sometimes be difficult in some instances because of lack of space. In built-up areas it can be difficult for companies to erect new buildings for their terminal equipment as building land is often not available and where it is, the cost of buying is high. Denial of requests for facilities or irregular fees can be a barrier for new companies on this market.

1243. Available space in Mila street cabinets must be examined specially with regards to the Mila VDSL rollout, because as there is very limited space in street cabinets it could transpire that there is not sufficient space for more than one company to set up its DSLAM equipment in each individual street cabinet, but with the Mila VULA solution in accordance with PTA obligations to this effect¹⁶⁹, the importance of facilities in street cabinets for new entries have decreased greatly in recent years. And besides that, there is nothing that indicates that it is technically realistic or financially justifiable. One also has to note that there could potentially be interference if two parties have their equipment in a small space. There has on the other hand been no demand for the VULA solution in the Mila copper network. It seems that Access Option 1 and Access 3 in bitstream fulfil the needs of most players on the market and that VULA is not, as things are today, offering an addition that electronic communications companies are prepared to pay extra for. In addition to this, one can hardly see that use of VULA is a realistic option, neither technically nor financially. This means that Mila has a great advantage with regards to facilities because of the initiative effect of the company's copper network.

1244. The PTA considers it unlikely that any party will see an advantage in new bitstream systems with national coverage, but it is rather likely that companies such as for example utilities or individual municipalities in the countryside will rather concentrate on introducing fibre-optic without active equipment to their home areas and that this will be done in smaller areas and that GR will focus on larger urban clusters in its operational territory in the lifetime of the analysis.

1245. The PTA considers the development of new bitstream systems to be problematic and unrealistic in most instances, at least on competitive grounds. One can, however, expect that the development by GR and Tengir will continue in these companies' existing operating territories in the coming years and in addition to this smaller municipalities in the countryside have increasingly decided to fund their own local fibre-optic with state aid. The above, along with the lack of facilities that is the reality at many locations in the country's most densely populated areas, particularly with respect to fibre-optic rollout that is now under way, create barriers for general competition.

1246. The PTA comes to the conclusion that facilities can, along with delays in processing applications, be a barrier to competition that is based on service offer through a fixed line access network, if the appropriate wholesale obligations are not in place. Shortage of space with Mila is not generally a problem with that company today, and in addition to this, available space will increase with the decommissioning of the voice telephony system in the coming years. For this reason, lack of facilities in premises is not considered to be a barrier to competition, given that obligations on access to the premises are in place, but this could be an access barrier if obligations were not in place.

¹⁶⁹ See PTA Decision no. 21/2014.

9.4.3 Sunk costs

1247. When a company enters a new market, this often requires certain preparatory work and initial investment. If entry to a market fails it can sometimes be possible to recover such costs, for example with the sale of investments and equipment. Sunk costs are those costs that the new entrant has to bear as a loss should he not be able to establish himself on the market. Sunk costs are a barrier to entry, because the incumbent companies on the market do not have to bear them because in most instances, they have already made them. New companies that are finding their place on the market, as is the case here, are at a greater risk of having to bear sunk costs than the incumbents who have already written off a large proportion of their investments.

1248. Costs, for example for marketing are generally highest at the beginning of operations. If a new party is to attract a significant share of customers from incumbent companies, it will presumably need to invest heavily in extensive marketing. Sunk costs can be in investments in electronic communications equipment and business costs related to marketing, particularly with young companies that are trying to gain a foothold on the market. One can assume that sunk costs are likely to be proportionately high in Iceland for geographic reasons and because of the wide spread of communities.

1249. Despite the fact that most local loops in this country have long been copper lines, companies that deploy local loops have only installed fibre-optic local loops in recent years and offer bitstream service on the networks. Mila currently lays fibre-optic in new districts and in older districts at many locations in the Capital City Area and also at many locations in urban areas and offers GPON connections on their fibre-optic local loops, but at the same time offers VDSL high-speed solutions over copper local loops at most locations where copper local loops are in place. Both GR and Tengir have P2P topology on their fibre-optic networks. On the other hand, GR only offers bitstream access to its fibre-optic to the house. It is therefore difficult, given the current situation, for new companies to enter the bitstream market in the area where Mila has developed with GPON topology, without deploying their own fibre-optic. The same can be said about the operational territory of GR given the current situation.

1250. The start-up cost of deploying a new data transfer network lies in specialised equipment and its installation, which has a relatively short life cycle because of technological advances in this field. One must keep in mind that there can be significant value in specialised facilities with the attendant cabling. The same applies to fibre-optic that has been located in the ground where access networks and trunk line networks connect, particularly at those locations where there are no fibre-optic connections in place.

1251. One must also note that new companies have found it difficult to compete with Mila's bitstream system which has close to national coverage and which was developed over the past years under different market conditions. Mila also operates an extensive trunk line system, which makes it possible for the Group to connect all of the company's access systems across the country. The PTA considers that sunk costs are an entry barrier for new companies on the wholesale market for central access.

9.4.4 Economy of scale

1252. Economy of scale is said to exist in company operations where increased production means a lower total cost for a product or service unit. This is characteristic for technical companies which have relatively high fixed costs and low variable costs. Economy of scale can act both as an entry barrier and as a competitive advantage. Network operators already on

the market endeavour to operate their own networks with maximum efficiency. New network operators need time to develop their operations, gain a customer base and traffic and can thus not expect to enjoy the same economy of scale as those that have operated their electronic communications networks for years.

1253. With respect to the broadband market, the operation of a broadband system constitutes in itself economy of scale in proportion to the size and scope of the bitstream system in the operations of the party in question. This is because of the substantial underlying investment and fixed costs that are for example inherent in the system. Economies also emerge in lower start-up costs because of bulk purchase of equipment and advantageous agreements with manufacturers. In the same way economy of scale can result from the minimum number of repairmen and other staff with appropriate knowledge and expertise that are needed to provide adequate service. These factors can in some instances be a barrier to entry into the market.

1254. Mila offers services almost nationwide and in large areas it is the only company on the market. In such a situation Mila has had time to establish itself and acquire all business in the regions in question, which is an option that other companies do not have. Mila has also been purchasing or leasing for the long term, smaller local fibre-optic networks in the countryside, which have mostly been deployed by municipalities with grants from the Telecommunications Fund and has taken over the operations of others or operated bitstream service there. One can assume that this will make it less economic for new companies to enter the market areas in question and achieve minimum economy of scale.

1255. After Vodafone received access at the beginning of 2011, to fibre-optic fibres owned by NATO, the company has increased its offer in municipalities and villages at many locations around the country. The optical fibres in question that are laid all around the country belong to the market for trunk segment of leased lines, but the company does not operate its own access network, except in the form of local loop lease from Mila to a very limited degree, as the company first and foremost purchases Access Option 1 in bitstream. As previously stated, Vodafone has almost disappeared from the relevant wholesale market. In addition to this, the agreement expires in 2022 and it is unclear what will happen then with the NATO cable in question with respect to Vodafone and other interested electronic communications companies.

1256. Despite the major development of the GR local loop network in the past years, there is still quite a way to go before GR approaches the size of the Mila local loop network, except in a few municipalities in the Southwest corner of the country, in Reykjavik and neighbouring municipalities in the Capital City Area and in the occasional municipalities in Southwest Iceland. The PTA does not expect changes in this respect in the current marketing territory, but the company believes the whole country to be its marketing territory in the long term, but there is no available action plan to this effect. The PTA considers it inconceivable that this will be realised during the lifetime of this analysis.

1257. The PTA concludes therefore that Mila enjoys economy of scale in most parts of the operation and development of bitstream systems which strengthens Mila's position against other companies on the market. This economy of scale can manifest itself as an entry barrier for the latter companies. In the opinion of the PTA, GR enjoys considerable economy of scale, but to a lesser extent than Mila.

9.4.5 Economy of scope

1258. Economy of scope is the economy where it is less expensive to manufacture two or more goods together rather than each separately. A lower cost is achieved by jointly using resources in the production. A good example of this is the use of an electronic communications network where a variety of services are offered to consumers. Economy of scope can act both as an entry barrier for new parties and as an advantage in the market over competitors.

1259. As has previously been mentioned, Mila has the only local loop network (copper and fibre-optic), and bitstream service in the country, which covers almost the whole country. The company had 57% market share and at national level at the end of 2020. The company has been gaining significant ground, with respect to market share in wholesale of bitstream connections over fibre-optic and had about 28% market share there at the end of 2020, which had increased by 15% from the end of 2018, but had been negligible up until 2016. GR had 40% market share at a national level at the end of 2020. Tengir had 2% market share at the end of 2020. The PTA considers that during the lifetime of the analysis, Mila's share in bitstream service over fibre-optic local loops will continue to increase at the cost of the shares of GR, Tengir and other fibre-optic operators. Mila also increasingly offers bitstream wholesale service on fibre-optic local loops owned by others. Alongside this wholesale service the Siminn Group provides various retail services which leads to a certain economy of scope, for example because of better access to customers of retail services. Then there is the fact that Siminn is the party that has the highest market share at retail level in sale of broadband connections over fibre-optic and has by far the largest market share in sale over the copper network. The Siminn market share is thus just over 46% and could exceed 50% during the lifetime of the analysis as a result of the agreement with GR from July 2020. Siminn and Mila also enjoy economy of scope by operating services throughout the whole country, that is to say through its ubiquity with consumers.

1260. Mila has a network system that reaches virtually the whole country that was initially developed for fixed line telephone. Both Mila and Siminn (the Siminn Group) can jointly offer comprehensive services throughout the whole country almost independent of the user's geographic location. It is possible to assert that this position of these parties can act as an access barrier to new companies that do not have such a widely distributed bitstream system or breadth of service offer.

1261. It is clear from the above discussion that Siminn (Siminn Group) is the company that operates in most areas of telecommunications services at retail level, and its operations are furthermore extensive on markets for subscription TV service.

1262. With respect to the electronic communications market, Siminn offers comprehensive telecommunications services on the retail market, i.e., voice telephony, mobile phone and Internet service. The Siminn subsidiary, Mila, owns an electronic communications backbone system with almost national coverage. Mila operates a bitstream system on its backbone system, and on the fibre-optic networks of other parties such as Tengir and of the large majority of countryside networks. On the wholesale market, Mila has a trunk line network with almost national coverage and an access network that Siminn uses to provide comprehensive electronic communications services on the retail market. Other electronic communications companies also purchase service from Mila at wholesale level in order to provide electronic communications services on the retail market. The service offers and economy of scope in the above-mentioned understanding with Siminn is therefore substantial in electronic

communications service both in that the company offers a variety of services in this field in addition to the fact that it has a large share of all markets.

1263. Siminn has been finding its place in TV service during recent years and by offering this service with all types of electronic communications service, Siminn has gained a dominant position on the bundles market with the company's Heimilispakki, which the company began to offer in the autumn of 2015, and has thus rather if anything, strengthened its position on the electronic communications market in recent years.

1264. The position of Vodafone in Internet service is similar to that of Siminn with respect to product offer but is weaker when it comes to mobile phone and voice telephony service, and in addition to this the company has had a very limited access network of its own and has almost disappeared from the bitstream market. The company offers substantial TV service with its electronic communications service in bundles and enjoys economy of scope for this reason, though less than Siminn enjoys.

1265. To a certain extent one can say that GR enjoys economy of scope because of its ownership ties with OR. There are agreements between OR and GR that OR handle a large part of the necessary support services for the operation of a company, for example all the company's invoicing is handled by OR along with a large part of its book-keeping. GR also has access to facilities in OR buildings in its utility areas. GR thus enjoys economy of scope to an extent that is not available to companies other than Mila at such a scale.

1266. On the other hand, GR does not offer electronic communications service in retail, only a connection with its fibre-optic network in wholesale.

1267. There is nothing to indicate that other network operators enjoy economy of scope to any extent as they are much smaller and generally limited to specific urban kernels in the countryside.

1268. The PTA concludes that Mila has economy of scope, both within the company itself and as part of the Siminn Group, that new companies on the market do not enjoy to the same degree.

1269. Of the companies that enjoy economy of scope, the Siminn Group is a much larger company with more scope in its offer in the field of electronic communications services than other companies, i.e. that Siminn in retail and Mila in wholesale have a more varied service offer than other companies that provide bitstream service on the relevant market and have greater possibilities than others to leverage the economy derived from more products using staff, facilities and support services as a result of this broader product offer.

1270. The PTA therefore believes that even though both of these companies enjoy economy of scope, the economy is not equal and for this reason it is only the Mila economy of scope which is considered to be an entry barrier.

9.4.6 Access to capital

1271. Access to capital can have a deciding influence on how a company manages on a competitive market. This is particularly the case if substantial initial investments are required. Financially strong companies with good access to capital, other things being equal, are in a better position and can more easily protect themselves from competition than comparable companies that do not have as good access to capital.

1272. The difference between companies, with respect to access to capital could constitute an entry barrier. Good access to capital can both constitute an entry barrier and can indicate market power.

1273. Conditions on financial markets have improved significantly from 2008 when the international financial recession occurred and when the financial recession in this country was particularly difficult and had an impact on all business in the country.

1274. Access to capital has generally improved for electronic communications companies as the economy improved in recent years but Síminn, Míla, Vodafone and GR have all gone through recapitalisation. As an example, one could mention that long-term debts of the Síminn Group were recapitalised in 2017 and Síminn took a new loan to the amount of ISK 18.4 billion with a lien in Míla assets. Vodafone funded the purchase of specified assets of 365 miðlar hf. with a long-term loan to the amount of ISK 4.7 billion at the same time. Both of these companies are registered in the NASDAQ Nordic stock exchange.

1275. It is a very expensive measure to develop a network as extensive as that operated by Míla, and to a certain extent the access network and bitstream service operated by GR today. The Míla network was built to a large extent during the period of monopoly and state control. The development of the GR network is still incomplete and in reality, it is not certain how extensive it will be, but there is every likelihood that it will not reach further than the Southwest corner of the country, at least not during the lifetime of this analysis. Tengir in Akureyri is still developing its fibre-optic network in Eyjafjörður area and more widely in North Iceland, but this development is proportionately less advanced than in the Capital City Area. It is clear that access to capital for developing an access network will continue to be a competitive barrier because of the high investment costs, as can be expected, particularly in more sparsely populated communities.

1276. Capital for new investments is easier to acquire than before, which affects all development, but one can expect lenders to require at least 35% own funding along with other conditions. It will require considerable capital to develop a network comparable to that developed by Míla, or even the network that GR has now deployed. In order to do this, access to capital is necessary. In addition to this, it must be considered extremely unlikely that there are financial grounds for more than two fixed line access electronic communications networks or bitstream systems in this country in any given area, and in some locations, only one. An important issue with respect to financing an access network and bitstream system is that such finance needs to be long-term. Electronic communications systems require a long time for the investment to be recovered. This increases the importance of companies having easy access to capital and/or having already funded the projects.

1277. One must however note that as has been previously stated, it is not necessary to have a bitstream system with national coverage to survive on this market. It is also a fact that if one looks at the network operators that have entered the bitstream market in recent years, none of them aims to operate a network with national coverage, except possibly GR, though the PTA considers there to be not much likelihood that this will be realised, at least in the lifetime of this analysis. Network operators are even related to relevant utility companies that see an advantage in connecting their market territory with fibre-optic. The same applies to individual municipalities.

1278. It is however clear that in order to be viable on the relevant market, a company needs to have significant market share and thus distribution of its network. Companies other than Mila and GR have limited distribution and their combined market share is under 3%. Mila has been purchasing such local fibre-optic networks in recent times, ensured long-time control over them or deployed such networks with state aid. Mila has also taken over the operation of more such networks where the company operates a bitstream system, which in most instances were deployed by municipalities with the help of the Telecommunications Fund. In order to reach more users a company has to develop a wider and larger network than smaller companies currently have, and this requires access to capital.

1279. Information on investments in fixed assets in the PTA collection of statistical data does not indicate that GR has had better access to capital, subsequent to the bank crash than the Siminn Group, as Mila maintained in its comments in the consultation on the preliminary draft market analysis. If one examines investments of the companies related to electronic communications of the companies during 2008 and compares with investments subsequent to the bank crash [...] as can be seen in the following figure 9.3.

Figure 9.3 Total investments in tangible assets 2008 to 2019

[...]

1280. In the opinion of the PTA, it is extremely unlikely that there could be financial grounds for more than two electronic communications bitstream networks in this country if one takes into account investments in fixed operational assets of the past years, which to a significant extent are attributed to fibre-optic local loops and related equipment, including bitstream equipment.

1281. For the above reasons, it is the PTA's belief that because developing bitstream systems requires such substantial financing that access to capital is an entry barrier for new companies on the wholesale market for central access.

9.4.7 Barriers to expansion

1282. A market with significant potential for growth is much more attractive to new operators than a stagnant (mature) market. It is probable that undertakings contemplating entry into a stagnant market must mostly lure customers away from established operators. Where there are limits to a market's potential to grow and to offer more extensive services than those existing on the market, entry barriers may exist.

1283. Copper local loops have already been deployed to almost every single household and company in the country and bitstream systems with national coverage on copper local loops which severely limit the market's growth potential as all significant entry for new companies must be directed at competing with the existing bitstream systems and with companies such as GR, Tengir, Snerpa and Austurljós, though to a lesser degree. The growth possibilities available on the wholesale market are thus first and foremost in bitstream systems in those areas where only copper lines are in place. Mila has been expanding its fibre-optic network significantly during the past years as has previously been stated.

1284. The growth, which has been in broadband rollout in past years, is in the development of bitstream systems on fibre-optic local loops. The Mila fibre-optic network was at end of year

2020 connected to at least 77,000 homes in the country and the largest part of this is in the GR operational territory. In March 2021, the PTA had not received replies to repeated questions on specific deployment plan for fibre-optic, other than that, significant investments are scheduled until the end of 2023, at least. In June 2021, the PTA finally received further information from Mila on the expected roll-out plans in the coming years. It is therefore clear that Mila will, during the lifetime of the analysis, continue to conduct very vigorous fibre-optic deployment. GR projects that the fibre-optic rollout currently planned will be completed in 2023 in the GR deployment territory. With a new agreement between GR and the municipalities in Reykjanes and Árborg, it is expected that the number of households that can connect to the GR network will be about [...] at the end of 2023, and that the end of 2020, the network reached about 110,000 spaces. GR customers are mainly in the Capital City Area, i.e., the municipalities of Reykjavík, Seltjarnarnes, Kópavogur, Hafnarfjörður, Garðabær and Mosfellsbær, with the addition of municipalities in Southwest Iceland. Tengir has modest plans for increasing connections at Akureyri, in the Eyjafjörður area and widely across North Iceland in the coming years. At the end of 2020, the Tengir network reached about 9,600 spaces and the company expects them to have reached [...] at the end of 2023. The same can be said for the Snerpa fibre-optic network in the West Fjords and of Austurljós in Egilsstaðir and neighbouring area in East Iceland. The plans of those companies are modest but at the end of 2020 the Snerpa fibre-optic network reached about 1,100 spaces and the Austurljós network about 200-300 spaces.

1285. Tengir has modest plans for increasing connections at Akureyri, in the Eyjafjörður area and widely across North Iceland in the coming years.

1286. About 50 small local fibre-optic access networks have been deployed or are under development with state aid (Telecommunications Fund). When the project completes in 2021 or 2022, fibre-optic local loops will have been deployed to more than 6,000 addresses. The municipalities in question have in the most cases made an agreement with a specific electronic communications company, Mila in the large majority of instances, to operate bitstream equipment, such that the service provider can provide service for the end-users in question. In addition to this, Mila has deployed part of these networks with state aid, purchased them or leased long-term. According to the newest information from Mila, these are networks that reach about 1,600 addresses, which is 25% of the project, Iceland Optical Connected. The PTA considers this development can continue during the lifetime of the analysis.

1287. Extensive distribution of bitstream systems on fibre-optic local loops in the most densely populated areas has a very significant impact on growth potential for local companies. It must be considered almost impossible for other companies to see an advantage in deploying local loops to households and companies as such service is already on offer on fibre-optic and copper local loops, not to mention areas where dual fibre-optic systems exist.

1288. The existence of older bitstream systems means that the installation of new bitstream systems will always need to compete with the existing ones. In the light of substitutability between bitstream service on copper local loops and fibre-optic local loops, this significantly impairs new and smaller companies' possibilities for growth on the relevant market.

1289. It is thus the PTA conclusion that growth possibilities in the field of deployment and operation of bitstream systems are limited and that the lack of growth possibilities is likely to act as a barrier for new and smaller companies on the relevant market.

9.4.8 Sales and service systems

1290. Well-developed service systems can act as an entry barrier for new parties and as a competitive advantage. This particularly applies on markets where substantial costs are tied up in the development of distribution and sales systems or where all the companies have made sole agreements with the largest and/or most important distribution parties on the market.

1291. Service systems can represent a large investment for new companies that would like to establish themselves on a given market. The presence of established operators that have perhaps mostly written off their expenses can represent an entry barrier for new operators. Companies that have efficient service systems at their disposal can therefore have a competitive advantage over new market participants.

1292. Investment in service and information systems is not directly proportional to its number of customers or to its total sales but this investment expense is proportionally higher per customer in smaller companies. Therefore, an investment in an efficient service system represents economy of scale. The Siminn Group has for example developed service systems and line book-keeping over a period of many decades, while new companies must develop such systems from the ground up.

1293. Efficient service systems are the foundation on which customer services rest, as customers normally communicate with the company through its service systems. It is through the service systems that sales are registered, ordered, activated and the charges collected through invoicing. It is difficult to see how a company can maintain reliable operations and a sufficiently high level of service to build up a convincing position on a service market without such systems.

1294. During recent decades Mila, previously Siminn, has developed service systems and line book-keeping that benefit Mila today. One must also assume that Mila can make use of the joint order entry system and invoicing within the Siminn Group.

1295. At the same time one can say that GR benefits from being related to OR and from having access to its service systems, in the same way that Mila benefits from access to such Siminn systems. The same can be said about Vodafone, but today that company operates in a very limited manner on Market 3b. One must consider that Tengir enjoys a well-developed service system, though its economy of scale is less than the service systems of Mila and GR. It must be considered unlikely that other companies that have commenced deployment of their fibre-optic and bitstream service and companies that plan operations on the relevant market have the same access to such developed service systems that these two companies have.

1296. In the PTA's opinion, investment in service systems can represent an access barrier for smaller electronic communications companies on the relevant wholesale markets, and for new companies.

9.4.9 Vertical integration

1297. Vertical integration exists where the same party operates on more than one production and/or sales level, for example he manufactures goods, sells them to another party in wholesale and also sells the goods himself at retail level. A company that integrates varying operations in this manner in the value-added chain can by virtue of its position on the wholesale or retail

markets, erect barriers to competition on the market in order to strengthen its position against competitors.

1298. Vertical integration from the point of view of an electronic communications company has certain advantages as the company can combine all the services in question under one umbrella and for example use the same service systems for both the wholesale and retail parts. In addition to this, a company with vertical integration can relatively easily discriminate against competitors on the retail market because of its position on the wholesale market or make it difficult for competitors on the relevant wholesale markets, for example, when it does not offer its retail service on the networks of its competitors at wholesale level. Such retail service can be in the form of electronic communications service, TV service or bundles of such services.

1299. Despite the fact that Mila only handles wholesale services and Siminn both wholesale and retail, this does not alter the fact that these two companies together form a vertically integrated company in the understanding of competition law. At the beginning of 2021, the largest part of that wholesale service remaining at Siminn, subsequent to the settlement with the CA in 2013, was transferred to Mila, such as the IP-MPLS network and the RAN part of the mobile network. Siminn is by far Mila's largest customer as sales to Siminn represent over 70% of Mila's total revenue on average in recent years. Bitstream equipment is located at Mila, like the local loop system, and Siminn leases access to local loops and bitstream access from Mila. As both companies are part of the Siminn Group, ownership, management and financial connections between the companies are undisputed, but jointly they form a single economic entity in the understanding of competition law as previously stated. The PTA considers it clear that the Siminn Group has various opportunities to leverage the strength constituted by vertical integration, despite the fact that conditions were imposed in the settlement with the CA that are intended to mitigate this impact. There is further discussion on vertical integration and on the settlement with the CA in Sections 10.2, 10.4, 11.2 and 11.4 in this document.

1300. In the case of the GR fibre-optic local loops vertical integration is even greater regarding the relevant wholesale market. GR actually does not sell access to other electronic communications companies to its own local loops but only to bitstream. This is an instance of almost entirely internal sales on the relevant wholesale markets where the difference between local loops and bitstream is not particularly distinct to outside parties. Customers can generally not purchase access to local loops alone but must also purchase access to bitstream. This is however not always the case and companies have received access to dark fibre on the corporate market but the companies that lease local loops from GR are relatively few.

1301. The PTA considers that vertical integration on this market is likely to be an entry barrier for new companies to the market, despite some kind of self-imposed separation of wholesale and retail between Mila and Siminn in 2007, as the two companies were both part of the Skipti Group (now Siminn Group). The settlement between Skipti (now Siminn) and the Competition Authority from March 2013 (CA Decision no. 6/2013) reduced to some extent the management connections between Siminn and Mila but in no way did it exclude the vertical integration of the companies. The above specified settlement was amended in 2015 (CA Decision no. 6/2015) on the merger of Skipti and Siminn. This nevertheless somewhat mitigates the impact of vertical integration of the Group that lease of bitstream service over the copper network takes cost into account according to the current obligations in force and is subject to PTA surveillance, and the PTA intends to prescribe that the Siminn Group withstands an ERT test with respect to the Group's fibre-optic, and such an obligation should provide the Group with certain restraint with respect to pricing, both at wholesale and retail levels.

9.4.10 Conclusions concerning entry barriers in the relevant market

1302. In this connection one among other things takes into account various access barriers and the scope of electronic communications networks, including bitstream systems, on the market. Sales and marketing systems are also important, and whether the electronic communications company in question can offer the same customers varied service because of access to a broad product offer, i.e., economy of scope, etc. are taken into account.

1303. One must consider it clear that if the company intends to enter the relevant market and develop service on its own bitstream system, then it needs to develop facilities that are difficult to duplicate. It is not only necessary to incur substantial costs in developing a distribution system and infrastructure but also it can prove very problematic to find space for hosting the company's equipment. This applies both to rural and also to urban areas where space for buildings to house distribution frames is in short supply. One could for example mention that Vodafone has been withdrawing from operating its own bitstream system in favour of purchasing bitstream access to Mila, GR and Tengir. Vodafone, which is the second largest player on the retail market for broadband service has thus been descending the investment ladder. Control of infrastructure is therefore considered to be a significant entry barrier in the opinion of the PTA.

1304. Shortage of facilities is not normally a problem at Mila today according to the company, and in addition to this, available space will increase with the decommissioning of the voice telephony system in the coming years. For this reason, lack of facilities in premises is not considered to be a barrier to competition, given that obligations on access to the premises are in place, but this could be an access barrier if obligations were not in place.

1305. For new companies planning to develop their own bitstream system, one must consider that sunk costs from the investment represent a significant entry barrier. This particularly applies at locations where more than one system has already been deployed on the pre-existing fibre-optic and copper local loops.

1306. Mila, which is part of the Siminn Group, enjoys economies of scale and scope that competitors cannot foreseeably match during the lifetime of the analysis. It is inevitable that new companies on the market would find it difficult to compete under such circumstances and this creates a significant barrier to entry.

1307. The PTA considers that access to capital will always be a limiting factor because of how costly and time-consuming it is to enter and become a significant participant on the bitstream market. Access to capital is therefore considered to be a significant entry barrier to the relevant market. This is deemed to be a significant entry barrier to the relevant market.

1308. It is the opinion of the PTA that possibilities for growth have significantly diminished since the last analysis of the relevant market and that they will be meagre during the lifetime of this analysis. This is among other things because of how widespread the fibre-optic connections are in the most populous and densely populated communities.

1309. Mila's extensive service systems can give the company an advantage over new companies, and they call for these companies having such systems.

1310. The PTA believes that Mila enjoys vertical integration as part of the Siminn Group and that this is to some extent an entry barrier.

1311. It should be noted that entry barriers are lower for companies that plan small local distribution. A number of municipalities and/or companies have deployed access networks with state aid and are already operating in the countryside. Such networks are mostly owned by local municipalities and/or utility companies and to a limited extent have been developed on competitive grounds. This aside, Mila has been purchasing many of them in recent times, leasing them long-term, deploying them with state aid or at least providing bitstream service over them. These local loop networks will however never have a significant impact on the wholesale market in question, except possibly on a very local basis and in addition to this they will not enjoy economies of scale or scope. In addition to this, the smallest networks do not operate a bitstream system but rather make a general agreement with an active electronic communications company on that, and then usually with Mila. When the project Iceland Optical Connected ends in the year 2021 or 2022, there will be something over 6,000 spaces in the most sparsely populated communities that are connected, of something over 163,000 connectable spaces, which represents 4% of connectable spaces in the country. Mila has now gained control over approximately 1,600 of those spaces. The PTA believes that the entry of smaller companies in sparsely populated communities does not have significant impact on the market as a whole.

1312. With the above in mind, the PTA concludes that barriers exist for new companies entering the wholesale market for central access with fixed connection for mass-market products, which strengthen Mila's position on the relevant market.

9.5 Competition on the market in question

1313. The main objective of the market analysis is to investigate whether competition is active on electronic communications markets and to react to this with appropriate measures should it prove not to be the case.

1314. In the analysis of the wholesale market for central access with fixed connection for mass-market products (Market 3b) one can identify five factors that decide long-term profitability of companies. These factors are:

- 1) Countervailing buying power of purchasers with a strong position
- 2) Product diversification/bundling
- 3) Potential competition
- 4) Pressure from substitute products and
- 5) Customer choice and potential switching costs/the effects of binding contracts.

9.5.1 Customer countervailing buying power

1315. Buyers with a strong negotiating position can influence competition and can limit sellers' possibilities to operate without taking into consideration competitors and customers. A strong negotiating position exists primarily when a customer buys a large portion of an operator's

production, is well informed of other offerings, can switch to another operator without significant expense and even has the potential to commence production of a comparable product/service.

1316. When it is kept in mind that Siminn is the largest lessee of Mila bitstream access it is unlikely that other smaller lessees can constrain to any significant degree Mila's possibilities to operate without taking its customers into consideration (other than Siminn) to a greater or lesser degree. With respect to the retail market and to users, large users, that is to say those that have many local loops into a building, have a certain countervailing buying power which possibly affords them a discount from the normal retail price. On the other hand, Mila is not to any significant degree dependent on companies on the retail market because Siminn is by far the company's largest customer with about 70% of total Mila revenue coming from Siminn, and this diminishes the countervailing buying power of the other customers, but on the whole, Mila has 57% market share with reference to the number of bitstream connections at the end of year 2020.

1317. GR generally does not offer other parties direct access to its local loops, except on the corporate market, but owns itself all the equipment that is connected to the local loops, and sells access to bitstream. The company operates almost exclusively on the wholesale market for bitstream access. GR hardly operates on the retail market for electronic communications services, apart from selling occasional corporate connections to its network. The company has about 40% market share with reference to the number of bitstream connections at end of year 2020 and in this respect GR and Mila differ. For some considerable time, GR sold connections to its fibre-optic system directly to consumers without any other service, but now this is done through service providers who service the users in question on the GR system. The company therefore no longer has direct transactions with users in this regard.

1318. It is clear that a customer only has significant countervailing buying power when he has the possibility of dealing with another party for lease of bitstream access. This is however not possible in large regions of the country in the current circumstances.

1319. The wholesale market for central access in this country is characterised by self-supply of the Siminn Group. Siminn is by far the largest purchaser of Mila bitstream access. Countervailing buying power of a purchaser with such a large share in a seller's wholesale would under normal circumstances be considered very substantial. One must on the other hand consider the circumstances of Siminn and Mila and the fact that together they comprise the Siminn Group and there is an incentive for the Group to service consumers both at wholesale and retail level. For this reason, one should not consider the countervailing buying power of Mila's independent customers to be substantial.

1320. The situation is similar with the lease of local loops at GR which almost exclusively use them for self-supply, and they are generally not sold separately with that company, although there are examples of this to certain larger companies, as previously stated. GR does not operate directly on the retail market as does the Siminn Group, as the situation is such that most GR connections are used for broadband service that parties such as Vodafone, Nova and Hringdu sell on to users. In the latter part of 2021, Siminn intends to commence selling connections on the GR network. In the opinion of the PTA, this will be to a very small degree during the lifetime of the analysis and Siminn will continue on the Mila local loop network.

1321. The PTA considers that Vodafone countervailing buying power vis-à-vis GR is very significant, as the majority of Vodafone connections are on GR systems today, and Vodafone

purchases about [...] of the connections sold by GR. Vodafone is the second largest retailer in the country with about 28% market share at national level and with a significantly larger market share in the GR operational territory. [...]. It is not possible to exclude such changes during the lifetime of the analysis.

1322. The PTA conclusion is that purchaser countervailing buying power, that is to say of other electronic communications companies than Siminn, is subject to limitations vis-à-vis Mila, because of the special position of that company resulting from the ownership relationship ties between Mila and Siminn and from the very substantial transactions between these companies. The large share held by Siminn in retail also generally weakens customers' positions. On the other hand, Vodafone countervailing buying power is very significant vis-à-vis GR.

9.5.2 Product diversification / bundling

1323. Product diversification refers to how the consumer defines products and distinguishes between similar products. Clear product diversification in a company's offer can create fidelity in customers and can equally complicate entry for new parties into the market, contrary to what happens when the product offer is more homogeneous. Strong brand names have a comparable effect.

1324. A company that is dominant on one market can leverage its position to bundle products on that market with products on another market with offers that competitors have difficulty emulating. If competitors do not have the possibility of making comparable offers, then this strengthens the dominant position of the company on the former market and creates a competitive advantage on the latter. An advantage of this kind may need to be examined when market strength on the latter market is assessed.

1325. Mila has the special position on this market of being related to Siminn, which is ubiquitous on the market in this country and has a trademark developed over decades, as a company that had a monopoly in most areas of electronic communications for a long time. In this instance Mila has a good position but one has to keep in mind that the relevant market is a wholesale market where one can assume that the strength of a trademark is not as important as on the general consumer market.

1326. With the CA Decision no. 25/2020, the Authority came to the conclusion that Siminn had breached the provision on bundling in the settlement between the company and the CA from 2015, by marketing English football through the Heimilispakkinn. The Appellate Committee for Competition confirmed that part of the case with Ruling no. 1/2020, on 13 January 2021. One could also point out that with PTA Decision no. 10/2018, which was mainly confirmed by the judgement of the District Court of Reykjavik on 1 July 2020, the conclusion was reached that Siminn had in an unlawful manner directed the business of customers of its media provider to a related electronic communications company, i.e., Mila.

1327. Siminn bundling in retail service on the Mila access network strengthens Mila's position significantly on the relevant wholesale market and is considered to be a barrier to new parties' ability to get a foothold in the wholesale market for central access.

9.5.3 Possible competition

1328. This criterion is decided by the opportunities new companies have to enter the market. Should they have opportunities to enter the market, this can impact tariffs and price structure of incumbent companies and can also limit their possibilities to maintain higher prices and can support innovation. If new competitors can be expected to enter then this will lessen the tendency of incumbents to abuse their market power. It is necessary to examine this criterion from the point of view of access barriers (see Section 9.4). There is normally a correlation between entry barriers and a lack of potential competition.

1329. When new companies enter a market, the reason is often that they aim to acquire incumbents' market share and profits. This risk exercises restraint on incumbents and competition to which they try to react in some way or another. One example of this is their endeavours to increase economy of scale and reduce unit costs. Increased variety in the form of quality or trademarks is also a measure to counter competition. High investment costs provide resistance, particularly where they involve reinvestment in existing assets (switching cost). In addition to this, limited access to the distribution channels can be problematic for competitors. Companies who are the first ones on the market can often leverage their experience and knowledge as an advantage over competitors who come later. Access to resources (for example frequencies), government action and technical changes can also impact the ability and interest of new companies to commence operations.

1330. As has been stated here above, the PTA considers that a new economic and developed bitstream system would require considerable investment which would be to a great extent sunk. Particularly if the intention is to achieve economy of scale and market share on the relevant market. Economies of scale and concentration, which characterise access systems and apply particularly to the Mila access system, increase entry barriers for new companies. In the same way, access to local loops is limited. Mila operates VDSL and by using error correction vectoring technology, the company is authorised to withdraw access to part of the local loop, as two VDSL providers cannot operate on parallel local loops as the error correction reacts to such circumstances. The obligation for VULA access to the Mila VDSL system was to resolve this limitation to access to local loops, but electronic communications companies in this country have not shown interest in that solution, but rather first and foremost purchase bitstream access to the Mila copper system through Access Options 1 and 3. As the Mila fibre-optic network is deployed with PON topology, access to fibre-optic local loops is difficult to implement and it cannot be seen how a new player could be provided with such access side-by-side with Mila to configure his own bitstream equipment.

1331. The PTA concludes in this matter that there is little likelihood that new parties will enter and commence competition on the wholesale market for bitstream access with incumbent network operators, particularly at national level. Small local network operators concern themselves with providing inhabitants in their areas with access to fibre-optic where such a possibility has been highly unlikely without their intervention, rather than contemplate competing with Mila. Such small, local parties will generally not operate a bitstream system but generally have made an agreement with Mila, and to a lesser degree with Tengir, that those companies operate a bitstream system at that location. In addition to this there is nothing to indicate that other network solutions like wireless connections will change much in the near future. Possible competition with Mila at a national level is thus not on the horizon during the period of validity of this analysis. It is more likely that the development will continue to be such that Mila will purchase local fibre-optic networks if they are available and increase the density of their fibre-optic network, both in areas where others have deployed fibre-optic and in areas where no one has yet deployed a fibre-optic network.

9.5.4 Pressure from substitute products

1332. One can assume that on markets characterised by significant innovation, it is more difficult for companies to maintain and leverage their market power than on markets where there is little innovation. Technical developments that result in substitute products on the market can thus function as potential competition with incumbent companies and can weaken their dominant market position.

1333. Substitute products were discussed in Section 4.3.5 here above, where it was stated that despite the fact that various new technologies had emerged in recent years, there were still no other products belonging to the market than bitstream access over copper and fibre-optic local loops.

1334. In this country there is a widely distributed bitstream system on a copper local loop network and significant development has taken place in developing bitstream systems on fibre-optic local loops. For this reason, one can consider the relevant market to be mature in the understanding that a significant increase is not expected in the total number of local loops of the types existing today, though one can expect the development to continue where copper local loops gradually decrease and are replaced by fibre-optic local loops. This will furthermore lead to a decline in the number of bitstream connections over copper, though, to a lesser degree than on Market 3a, as on Market 3a there is still copper connections that are not for Internet service, such as PSTN, telephones in lifts etc. In the opinion of the PTA, bitstream connections over copper local loops will still be in operation to a significant degree at the end of the lifetime of this analysis.

1335. Nor is there any indication that there are other solutions on the market that fulfil the requirements made by the market for bitstream access, other than those currently existing in the form of broadband service over copper and fibre-optic lines.

1336. The PTA believes that there is no pressure on the market from potential substitute products and that it is unlikely that this will change significantly during the lifetime of the analysis.

9.5.5 Customer choice and potential switching costs/the effects of binding contracts

1337. If a service provider has a dominant market position, limitations or costs to consumers of switching provider company can enhance that provider's opportunities to behave without concern for the market. Such limitations can be commercial, technical or financial in nature, but they can also be a consequence of the user trusting established service providers more than new ones and being unwilling to take the risk of switching providers.

1338. One has to take into account the fact that in large areas of the country Mila is the only network operator that service providers can deal with. It is also a fact that despite the development of new bitstream systems, Mila has had its system in use since the inception of Internet use and it is thus inevitable that most service providers have taken this into account and tried to adapt their companies at the outset to access Mila's copper network, and subsequently access the company's fibre-optic network.

1339. To replace systems in order to be able to transfer to another network, such as connecting to fibre-optic local loops, can be costly and time-consuming. Parties to the market have to a large extent avoided this by dealing with GR, which sells them bitstream access to the fibre-optic network, which means that the companies do not need to purchase the connection equipment needed to connect directly to their local loops. One must however keep in mind that with this, the companies descend in the value chain and the control they have over the service they provide diminishes.

1340. The PTA believes that because of the long history and scope of the Mila local loop network, where the company is also the only one on the market, Mila has a certain competitive advantage in this respect. One can also note that, according to the PTA consumer survey, Siminn customers are less likely than those of other service providers to switch and vice versa, and as previously stated, the large majority of Siminn customers are on the Mila local loop network.

9.5.6 Conclusions on competition on the relevant market

1341. Copper local loops were, at the end of 2019, the most common access form for bitstream connections in this country and at the end of 2020, the situation is such that the proportion had dropped to 30% against 70% for fibre-optic. It is thus clear that Mila's position on the market is still very strong, particularly when one takes into account the impact of bundling of services from Mila and its parent company Siminn. At the end of 2020, Mila had 57% market share, while its largest competitor, GR, had 40%. As has been previously stated, Siminn is ubiquitous on the market and is one of the country's oldest trademarks and in addition to this, Mila also controls the country's only local loop network, which has close to national coverage.

1342. Buyers with a strong bargaining position can impact competition and seller operations in a variety of ways. In this country however it cannot be said that buyers' countervailing buying power is strong against Mila. The largest part of all Mila sales goes to Siminn, i.e., 70% of Mila revenue, and Mila is a subsidiary of Siminn. This high proportion, along with Siminn's strong position in the retail market, makes it possible for Mila to be more independent of other buyers than would be the case if unrelated parties had such a large share of their business in local loops, in addition to other service such as leased lines, bitstream and facilities. The PTA however considers that Vodafone has significant countervailing buying power vis-à-vis GR. In addition to this, there is an incentive with vertically integrated companies like the Siminn Group to service consumers, both at wholesale and retail level. This comes among other things to light when one considers Siminn's emphasis on sale of the Heimilispakkinn and the company's success in this connection.

1343. GR leases access to bitstream to service providers in wholesale (in most instances to Vodafone), which takes a fee from them for general bitstream service, and in addition collects a fixed fee for access to the local loop. This fee was formerly collected by GR itself, but now it is collected by GR customers, so consumers no longer make payment directly to the company. GR income from local loops and bitstream is therefore collected by service providers directly from end users. This is in reality parallel collection of charges, that is to say the same service provider leases at the same time both local loop and broadband access, and GR operates first and foremost at wholesale level for central access, and its situation is therefore not comparable with the Siminn Group, among other things, as Vodafone's, countervailing buying power vis-à-vis GR is significant in the opinion of the PTA.

1344. Competition on the market is largely controlled by how consumers define products and distinguish between them. On the market in question, Siminn is ubiquitous and also represents a trademark that has been developed over decades and Mila enjoys the benefits of this. On the other hand, one must keep in mind that the nature of the market as a wholesale market means that the strength of a trademark does not have the same force as it otherwise would have had. The advantage that Mila has in this respect cannot therefore be considered to be as important as on a consumer market.

1345. The possibilities of new competition are to a large extent limited, particularly at a national level. The possibilities for local companies to establish bitstream systems in their home region do however exist at many locations, including where state aid has been obtained. It is not certain whether such local development is feasible on competitive grounds as other considerations often take precedence in such development over the consideration of profit. It is difficult to imagine that such development, should it take place, would be more than in just a few low population areas and would hardly change much with respect to market share in the country as a whole. In addition to this, municipalities deploy, first and foremost, fibre-optic networks, and leave it to other parties such as Mila and in some instances Tengir, to operate bitstream systems on these networks. The PTA thus does not expect there to be significant new competition during the lifetime of the analysis.

1346. The PTA does not expect that a new technology, such as wireless network connections, would be able to replace existing bitstream connections and become a substitute product for them during the period of validity of the analysis.

1347. The possible limitations and cost for purchasers to switch between companies could inhibit competition. This particularly applies where one company has market dominance. In this country the Siminn Group was the only party on the market for many years and is still the only party on the market in large areas of the country. The PTA believes that because of this business history and its extensive business network, Mila has a competitive advantage on this market in this respect.

1348. Competition between companies already operating is characterised in general by the Mila high market share throughout the whole country. All companies that operate electronic communications services need to rely to some degree on Mila and many have made substantial investments in work and equipment to connect to Mila's systems. To switch service provider can thus be both costly and time-consuming and there is the additional risk that services will be curtailed for some time. Mila thus enjoys an advantage from having been on the market for a long time and from the fact that many companies have business commitments to Mila. In addition to this, self-supply within the Siminn Group is very conspicuous with Siminn being by far the largest buyer.

1349. The conclusion of the PTA market analysis of the relevant market is that Mila, along with its parent company Siminn (Siminn Group) has competitive dominance on the relevant market. The company's market share, its size and position are the reasons for this. It is also the view of the PTA that on the wholesale market for central access, there are access barriers for new companies entering the market.

9.6 Assessment of SMP on the relevant market (Market 3b)

9.6.1 General

1350. Assessment of SMP is based on the ESA Guidelines on market analysis and on the various influencing factors discussed here above. In accordance with the text of Paragraph 76 in the ESA Guidelines and taking into account existing market conditions, the PTA bases its assessment on analysis of the relevant markets as they are today and having taken into account development in recent years and prospects in the near future.

1351. In paragraph 1 of article 18 of the Electronic Communications Act no. 81/2003 the following is stated: *An undertaking shall be deemed to have SMP if it, either individually or jointly with others, holds a position of economic strength on a certain market which enables it to prevent effective competition and to operate to a substantial extent without concern for competitors, customers and consumers.*”

1352. This is an important point of departure in the market analysis and PTA wishes to emphasise that the existence of SMP is the appropriate measure, not abuse of a dominant position. Therefore, the core of the market analysis is not whether an undertaking has misused its dominant market position or not. This does not mean, however, that an undertaking's behaviour in the market does not make any difference in the assessment of SMP. Even though aspects of the market structure weigh heaviest, practices which support SMP, or that maintain the competitive advantage of an undertaking with SMP, can reduce competition on the market.

1353. As is stated 9.2 in Section 9.2 here above, assessment of market share is on its own not sufficient to decide on whether an undertaking should be designated with SMP on the relevant market. There must be very strong arguments for a company with over 50% market share to be considered not to be in such a position. As stated there, Mila had 57% market share nationwide on the relevant market. To remove all doubt, it is appropriate to examine all appropriate factors in this connection. A decision on designating an undertaking with SMP cannot generally be based exclusively on one criterion, but rather it has to be based on a number of criteria and on interactions between them.

1354. An undertaking can be designated as having single dominance or joint/collective dominance. If the conclusion is that one undertaking has SMP then one normally does not need to consider the question of joint dominance. If on the other hand the conclusion is that no undertaking has SMP on its own, then one must examine whether the circumstances pertain for joint dominance. In addition to this, an undertaking that has SMP on the relevant market, can also be considered to have SMP on a related market if the connections between the markets are such that the company can leverage its market strength on one market in order to increase its market strength on the other, see Paragraph 2 of Article 18 of the Electronic Communications Act.

9.6.2 Designation of an undertaking with significant market power

1355. The main companies on the wholesale market for central access provided at a fixed location for mass produced goods (Market 3b) are Mila and GR. As has been stated, there is substantial concentration on the market and the two companies mentioned above have jointly just under 97% market share, where Mila has about 57% market share and GR has 40% market share. Tengir comes next with about 2% and others with just over 1% market share at the end of 2020.

1356. A company's market share is an important factor in market analysis. It is however not the only factor that decides whether an undertaking is designated as having SMP, but it can give strong indications about whether such a situation exists or not. A very significant market share, that is to say over 50%, is generally on its own sufficient according to accepted case law, to designate an undertaking as having a dominant position, except in exceptional circumstances. According to the Guidelines, a suspicion that single dominance exists with one company normally does not arise until market share has reached at least 40%. A company with market share of less than 25% would in all likelihood not be considered to have dominance, except in the case where it had joint/collective dominance with others. According to this, the Mila market share is well over the guideline which indicates SMP on the relevant market. Despite the fact that the Mila market share has diminished somewhat between analyses, it would be the PTA's view that during the lifetime of the new analysis, Mila would in all likelihood maintain a market share of over 50%. Apart from this, Mila is a subsidiary of Siminn and thus part of the Siminn Group, which forms the largest electronic communications company in the country, and which is vertically integrated and thus operates both at wholesale and retail level.

1357. It was stated in Section 9.2 that market share does not on its own decide whether a company has SMP but there is considered to be a *prima facie* likelihood that a company with more than 50% market share has market dominance. A market share of about 57% at end of year 2020, a lack of substitute service, size and profitability, along with the access barriers that other companies must face on the relevant market that are described here above, indicate decidedly that Mila has SMP on the relevant market.

1358. Here above in this section and in Section 4 on definition of relevant service market, there was discussion on the competitive position of companies on the relevant market for bitstream. It was stated there that local loops and thus bitstream service are still limited to fixed line connections and must be laid underground and that despite various innovations and developments on the market since the publishing of the market analysis in force from 2014, there are still significant barriers facing electronic communications companies that wish to establish themselves on the relevant market. The access barriers that mainly face new companies are barriers such as control of infrastructure difficult to duplicate, sunk costs, economies of scope and scale, access to capital, barriers to growth, developed service systems of the dominant parties to the market and vertical integration, and one must view Mila and Siminn, as a single economic unit in the understanding of competition law with respect to the market analysis. In the light of this and because of how extensive and large the Mila bitstream system is, along with the substantial cooperation with its parent company Siminn, one can assume that the company can maintain its strong position on the relevant market against competitors during the lifetime of this analysis.

1359. On the basis of the above and the conclusions from the analysis of the relevant wholesale market for central access it is the conclusion of the PTA that competition is not active and that the companies Mila and Siminn (Siminn Group) have SMP on the relevant market, see Paragraph 1 of Article 18 of the Electronic Communications Act. In the light of the above the PTA designates Mila ehf. and Siminn hf. as having SMP on the wholesale market for central access provided at a fixed location for mass-market products (Market 3b).

1360. With the above conclusion in mind, the PTA does not consider any need to discuss the question of joint market dominance.

10 Imposition of obligations on the wholesale market for local access with fixed connection (Market 3a)

10.1 In general on obligations

1361. According to paragraph 2 of article 17 of the Electronic Communications Act, market analysis shall be the basis for decisions on whether the PTA shall impose, maintain, amend or withdraw obligations on companies with significant market power. If a market analysis reveals that there is no effective competition in the relevant market and that one or more electronic communications undertakings in that market possess significant market power, the PTA is authorised to impose one or more obligations on the company that is designated as having significant market power, in accordance with article 18 of the Electronic Communications Act. If the PTA has previously imposed specific obligations on operators, these shall be reviewed and either maintained, amended, or withdrawn in accordance with the results of the market analysis.

1362. Article 27 of the Electronic Communications Act states that when an electronic communications undertaking is designated with significant market power, the PTA may impose obligations on it concerning transparency, non-discrimination, separation of accountancy, open access to specific network facilities, price control and cost accounting, as necessary for the purpose of promoting effective competition¹⁷⁰. These obligations are described more fully in Articles 28 – 32 of the Act.

1363. When selecting obligations to be imposed in order to solve specific competition problems, it is necessary to use several fundamental principles as guidelines.¹⁷¹ All obligations imposed shall take into account the nature of the specified competition problem and shall be designed to solve it. They shall be transparent, justifiable, reasoned, and in line with the objectives they are designed to achieve – that is to promote competition – as well as contributing to the development of the internal market and safeguarding users' interests. Obligations must be proportionate and may not impose heavier burdens on operators than is deemed necessary.

1364. In a report¹⁷² from the European Regulators Group (ERG)¹⁷³ on ex ante obligations emphasis is placed on developing competition in the construction of electronic infrastructure and networks where this is considered desirable. In such instances the imposed obligations should support such development. When infrastructure-based competition is not considered desirable due to significant and persistent economies of scale and scope or other barriers to entry, it is necessary to guarantee sufficient access to electronic communications networks and equipment at the wholesale level. In this context, it is necessary to ensure two things: first, to encourage service-based competition; and second, to guarantee a sufficient fee for access to existing electronic communications networks, thus providing an incentive for further investment in such networks, as well as for their renovation and maintenance. In addition to the above specified ERG report on obligations in general, the PTA also took account of the

¹⁷⁰ See also Articles 9 - 14 of the Access Directive.

¹⁷¹ See article 8 of the Framework Directive.

¹⁷² ERG (06) 33, Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework - Final Version May 2006.

¹⁷³ Now BEREC: Body of European Regulators for Electronic Communications.

document on the BEREC Common Position on obligations on the wholesale market for network access to fixed line networks, which was published in 2012.¹⁷⁴ The PTA furthermore takes into account the EU recommendations on access to Next Generation Access networks from 20 September 2010¹⁷⁵ and recommendations no. 2013/466/EU on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.¹⁷⁶

1365. For the long term, service-based competition that has its foundation in steered access to a cost-analysed price can be a tool for generating competition in the regeneration of electronic communications networks. This refers to what is called the investment ladder, and its objective is to create conditions that make it possible for new operators to build up their electronic communications networks in incremental steps.

1366. In selecting the obligations that are best fitted to promote competition in a given market, it is often beneficial to consider the position that would exist if obligations were not imposed on undertakings in the relevant market and whether it would be sufficient to use competition legislation alone to guarantee competition.

1367. The objective of obligations on the wholesale market here under discussion is to strengthen competition on the relevant wholesale market and on the downstream wholesale Market 3b and on the downstream retail market for broadband connections, which is described in Section 3 here above, for the benefit of consumers.

10.2 Competition problems

10.2.1 General

1368. Obligations are imposed on companies with significant market power with the aim of combating real and/or potential problems in the field of competition on the market in question, and on corresponding wholesale markets and related retail market. Problems in the field of competition, with the exception of problems that can derive from market structure, refers to any kind of behaviour by a company with SMP, which is intended or leads to competitors being forced out of markets, which prevents potential competitors from entering the market and/or harms consumers' interests. When obligations are applied pursuant to the Electronic Communications Act, the reason does not need to be that a dominant market position is in reality being leveraged, and it is not a criterion that a competition infringement might have been committed, but it suffices that competition problems could possibly arise from the circumstances, among other things because of specific market structure, that are detrimental competition.

1369. A company with SMP can leverage its market power in many ways. With vertical market strength the company can deny other companies' access to its system, can price services too

¹⁷⁴ BEREC Common Position on best practices in remedies on the market for wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location imposed as a consequence of a position of significant market power in the relevant market - BoR (12) 127.

¹⁷⁵ RECOMMENDATIONS COMMISSION RECOMMENDATION of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU)

¹⁷⁶ COMMISSION RECOMMENDATION of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU)

high/low, discriminate against companies on the basis of price for service or resources and can take advantage of unfair use of competitors' information. These aspects affect the downstream wholesale market, and related retail market. Another consequence of a company's SMP can be that a company hinders access by others to a market, practises abuse with excessive pricing which returns inflated profits (where a company with SMP sets prices without needing to take customers or competitors into consideration) and in addition to this there is a significant risk of inefficiency in production as competition is unable to exert the constraints necessary. These aspects related rather to competition on the relevant wholesale market, which can then in turn impact on a wholesale market higher up in the value chain and affect a related retail market.

1370. Discussion on competition problems in this analysis is in many respects analogous to the discussion in the PTA analysis of Market 4 in 2014, as changes in circumstances have not occurred since 2014, that would lead to changes in solutions to the problems that then existed, with the possible exception that more emphasis needed to be put on potential horizontal competition problems on the relevant market.

10.2.2 Competition problems on the relevant market

1371. In Section 8 here above, the PTA came to the conclusion that on Market 3a, there was no effective competition and that Mila, and in fact the Siminn Group as a whole had SMP on the market. Such a situation meant that Mila, which is part of the Siminn Group, thus has SMP on the market that enables it to prevent effective competition and to operate to a substantial extent without concern for competitors, customers and consumers.

1372. In the following sections there is discussion on competition problems created by competitive conditions on the market, both on the relevant market and on related markets. Among other things, an assessment shall be made of what competition problems could arise if no obligations were in place. As previously stated, it is not necessary to demonstrate that damaging behaviour has taken place, but rather it suffices to indicate likely incentives and opportunities for behaviour that could inhibit competition, among other things as a result of market structure. There will also be discussion on instances that have arisen in recent years that can indicate that the position of Mila and the Siminn Group, in connection with Market 3a can create competition problems. Analysis of competition problems aims to provide a basis for a decision on imposition of obligations and to identify the types of obligations that could be most useful in combating competition problems on the market.

1373. In the ERG report from 2006 on a common position with respect to the imposition of obligations on electronic communications markets¹⁷⁷, there is discussion on the main categories of competition problems that can arise on electronic communications markets. Problems are named there that are related to vertical integration, or horizontal concentration, significant market power on the relevant market and call termination. The PTA furthermore takes into account the BEREC document from 2012 in this connection¹⁷⁸. In the opinion of the PTA, the most likely competition problems on a wholesale market, such as Market 3a, on the one hand that relate to a company's vertical integration and transfer of SMP to a related

¹⁷⁷ ERG (06) 33, Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework - Final Version May 2006.

¹⁷⁸ BoR (12)127: BEREC Common Position on best practices in remedies on the market for wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location imposed as a consequence position of significant market power in the relevant market.

market and on the other hand problems created by SMP on its own on the relevant market. In the light of the fact that Mila still has SMP on the relevant market and as part of the Siminn Group, which is a vertically integrated economic unit, one must consider that these problems can arise in this country and have in fact done so in various instances. In the following sections, these problems are described mostly in a general manner, and after that there is discussion on the individual instances that have arisen.

1374. Mila is in possession of facilities in the housing of telephone exchanges, central offices and equipment houses all over the country, that is very important but difficult for other telecom companies to replicate. Co-locating equipment in these facilities is irreplaceable for those telecom companies that rent Mila's local loops, as well as those companies that wish to serve such renters with connections or other data services that are necessary for the services provided over these local loops. GR rents a significant amount of hosting in Mila's facilities, both for inactive and active equipment. Although the financial amounts are not great in the larger scheme of things, these facilities are of high importance for GR and at the same time for those customers of Mila's that are also customers of GR's.

10.2.3 Vertical integration and transfer of SMP

1375. Vertical transfer of SMP is described as where a vertically integrated company with SMP at wholesale level endeavours to transfer market power to a downstream market by excluding or working against competitors on those markets. Market 3a is a wholesale market and is connected to a number of downstream markets such as the wholesale Market 3b for central access, the wholesale market for high quality connections on the corporate market (previously the market for terminating segments of leased lines, now Market 4), the retail market for fixed line voice telephony with both traditional PSTN technology and IP communication protocol (VoIP), the retail market for Internet connections and the retail market for IPTV. Other retail markets can be defined later, by the PTA or by other NRAs, for other retail sales, now or later, provided through local loops.

1376. One can make a distinction between the three main categories of transfer of SMP:

- a. Refusal of access.
- b. Pricing.
- c. Other aspects relating to communications with competitors.

10.2.3.1 Refusal of access

1377. A company which has SMP on the wholesale market can tend to deny companies, that are competing with the company on downstream markets, access to wholesale service, for the purpose of preventing competition or at least making it more difficult for competitors. Such behaviour can be manifested in absolute refusal of access or that access is provided at such unreasonable terms, including pricing, that is tantamount to refusal. The PTA considers that Mila could have opportunities and incentives to refuse Siminn competitors' access to Market 3a in order to make it difficult for them in competition on downstream markets, if no obligations were in place that oblige the company to provide access.

1378. For denial of access to create significant competition problems, circumstances must generally exist where competitors on downstream markets do not have the option of using other networks that could provide them with comparable access at comparable terms. Despite the fact that in this country, fibre-optic networks have been deployed by parties other than Mila, they do not have national coverage and at many locations retailers need to rely on Mila wholesale service. One also has to keep in mind that there are still just over 30% of Internet connections in this country on the copper network, which is only available from Mila. Mila has also taken over operations or purchased many of the local fibre-optic networks that have been deployed in the countryside with grants from the Telecommunications Fund. Mila refusal of access to connections on Market 3a could thus have serious consequences for competition on downstream markets, particularly if the operational basis of competitors on the market in question is not secure as a result of market structure and/or of behaviour of the Siminn Group.

10.2.3.2 Pricing

1379. The transfer of SMP through pricing can have various manifestations, such as discrimination in pricing, cross subsidies and damaging predatory pricing. The purpose of such behaviour can be to increase costs for competitors, lower their turnover and put them in a tight position by having a very small difference between the price on the relevant wholesale market on the one hand and on downstream markets on the other.

1380. A company with SMP can have incentives to sell its wholesale service at varying prices depending on who the competitor is. For example, the company could sell to its own retail arm at a lower price than to other purchasers. This could lead to costs being higher for competitors and could make it difficult for them to compete. This could lead to there being too small a difference between wholesale and retail prices which can make it impossible for competitors to conduct their operations, with profit and can eventually drive them out of the market.

1381. Differing prices can in some instances be justifiable, for example if the cost of providing a service differs verifiably, or if discounts are given for bulk purchase. If a bulk purchase discount is however based on the number of transactions that could only apply to the retail arm of the company itself, then this indicates that this is a measure to inhibit competition. The PTA considers that if appropriate obligations are not applied then Mila will have the opportunity and incentive to discriminate between competitors in pricing on downstream markets.

1382. Cross subsidies can occur between services on Market 3a and downstream markets, i.e., Market 3b and retail markets. A vertically integrated company, such as the Siminn Group could have the opportunity and incentive to collect an abnormally high price on Market 3a, and a price that is too low on the basis of cost on downstream markets, if obligations for price control were not in place. Profit on Market 3a could then be used to subsidise losses on downstream markets. Cross subsidies of this kind put competitors on downstream markets in price difficulties, as there is too small a difference between wholesale and retail prices.

1383. Under-pricing is when a company sells a product or service under a specified cost criterion. Generally, this means prices that are below average variable costs. A company with SMP on a wholesale market can have the incentive to predatory price on downstream markets, for the purpose of strengthening its position and even of pushing its competitors out of the market, or to hinder the entry of new competitors. The competition authorities have in a number of instances needed to take action because of damaging predatory pricing by an SMP operator,

for example against Siminn in case 30/2011, see ruling by the at Appellate Committee number 10/2011 where it says, among other things:

“The dominance of the appellant on submarkets of the electronic communications market, particularly in the field of fixed line systems and mobile phone service, make it particularly urgent to prevent the appellant from leveraging his strong position there, to create a corresponding position on new or related telecommunications markets that are in development. Otherwise there is a danger that competition will not be allowed to develop naturally on such markets.”

1384. The PTA considers that under cover of a strong market position on Market 3a, the Siminn Group could have incentives to use predatory pricing at wholesale and retail level and thus have a damaging impact on competition.

1385. With predatory pricing and cross subsidies, normal balance in pricing between Markets 3a and 3b could be distorted and this could result in making competition more difficult for competitors on related markets or even drive them out of the market. So, an abnormally small difference in price between Market 3a and Market 3b could divert competitors from Market 3a and force them to purchase more services from Mila, i.e., bitstream services on Market 3b.

10.2.3.3 Other aspects relating to communications with competitors on related markets

1386. Transfer of SMP that is not related to pricing can be in the form of various behaviour that constitutes discrimination between a company's own sales units and those of competitors. For example, this could be a case of delays in negotiations or delivery, irregular demands on counterparties in negotiations, discrimination in quality, discrimination in provision of information or misuse of information from the counterparty.

1387. A company with SMP has an incentive to delay when competitors on a downstream market request access to wholesale service. This can create competitive advantage for the company as competitors are slower to react to demand on a market when they do not receive rapid access to necessary wholesale service. Retail departments of the vertically integrated company then gain such an advantage which is called first mover advantage. It is necessary to prevent behaviour like this by imposing obligations for non-discrimination and for a maximum time that negotiations and the delivery of service, may take.

1388. In some instances, companies with SMP make irregular demands on wholesale purchases who are competitors on downstream markets. Such demands can for example relate to bank guarantees, minimum number of transactions or demands for unnecessary information.

1389. This can also be a case of discrimination in quality between the service that a company's own departments receive on the one hand and competitors on the other, e.g., with respect to reactions to faults.

1390. Problems related to communicating information between companies can in the first instance be such that the wholesale arm of a vertically integrated company provides its retail departments with better information and earlier than it does when competitors are informed, e.g., about development plans and upgrades of technical equipment. This could mean that competitors become slow to react to changes and miss opportunities to gain or retain customers that are interested in purchasing the newest service solutions on the market. A vertically integrated company's treatment of information from customers can furthermore create

competition problems. When making wholesale agreements, the wholesaler receives various information concerning the operations of the wholesale purchaser, their plans and estimates of the number of users. A vertically integrated company can have an incentive to disseminate such information in some way to its retail departments, which makes it then easier for them to resist competition.

10.2.4 Problems related to assessment of SMP on the relevant market

1391. Problems related to significant market power on the relevant market and that occur on that same market are various types and one can mainly name entry barriers, misuse against competitors on the relevant market and downstream wholesale markets, misuse against customers and inefficiency in production.

1392. A company that enjoys market power on the relevant market can endeavour to create new entry barriers on the market in order to hinder new competition or make competition difficult for competitors on the relevant market, or on the downstream wholesale Market 3b. This can e.g., be done in the form of subsidies originating from other parts of a vertically integrated electronic communications company that lead to an irregularly low price, short or medium term, on the relevant market and which prevents competitors on that market that are not vertically integrated from enjoying reasonable profits. If such a vertically integrated company succeeds in increasing its market power on the relevant wholesale market even more, or even drives its competitors off the market, it is clear that both an incentive and an opportunity are created for the party in question to once again increase his wholesale price and thus damage competition on downstream markets.

1393. Competition problems can furthermore be in the form of behaviour against such competitors, which constitutes directing service providers and/or end users to their own electronic communications network on the relevant market, or on the downstream wholesale market 3b, e.g., with popular TV material or advantageous bundles which are not on offer on other networks.

1394. Another example constitutes increasing the cost of switching to customers with agreements that are binding for a long duration.

1395. These are only a few examples of a great number of dangers that can threaten competition because of a market structure as described here above and/or behaviour of the Siminn Group, which is further described here below. The PTA reminds that in order for it to be possible for the PTA to react to competition problems with obligations, it is required that an incentive and opportunity exist for a party with SMP to use his dominance, and not that it is demonstrated that the party in question has done this.

1396. More precisely, a company with SMP on the relative market can endeavour to make it difficult for those companies that operate in competition with such a company on the relevant wholesale market and downstream wholesale markets, for example on Market 3b and Market 4, or even force them out of the market. If appropriate obligations are not in place, there is a risk that such a company could for example arrange its pricing in the short or medium term, such that other operating companies would find it difficult to compete, so retailers on downstream retail markets would move their business over to the system of the SMP operator. In such a way, such an SMP operator would, among other things, collect abnormal profit at the retail level in order to subsidise service on the relevant market and/or downstream wholesale markets.

1397. It is clear that parties like GR and Tengir do not have the same certainty that service providers will not transfer their business to the Mila network as Mila has certainty that Siminn, which is the country's largest retailer, will not transfer its business en masse to GR and/or Tengir, even though Siminn made an agreement with GR on bitstream access to the GR network in July 2020, and where it is expected that Siminn will begin to offer its service on the GR network in late August 2021. Given that agreement, it is clear that by far the largest proportion of Siminn customers will remain on the Mila electronic communications networks for the lifetime of the analysis. This means that possible predatory pricing by Mila on the relevant market, which the parties in question find it difficult or impossible to compete with, could create serious competition problems on electronic communications markets. Countervailing buying power vis-à-vis GR and Tengir is therefore much greater than Siminn's buying power against Mila because of the vertical integration of the Siminn Group.

1398. A company with SMP can furthermore, have both an opportunity and incentive to abuse this position with respect to purchases, by overpricing or discriminating in price. Over-pricing is considered to exist if a company is successful in maintaining excessive profits from its operations, i.e., more profit than one could expect on a competitive market. Over-pricing could lead to too small a difference between wholesale and retail prices, which damages competition or retail prices that are too high, which damages consumers interests and even prevents some of them from using the service.

1399. The difference in pricing is more likely between its own departments on the one hand and competitors on the other, rather than between differing groups of consumers. Such discrimination is related to vertical integration and the transfer of SMP to a downstream market.

1400. Another competition problem that can arise can be manifested by an electronic communications company that is subject to obligations on a specific wholesale market, e.g., price control, and not on others, attempts to move product offer from a regulated market over to a non-regulated market. This can in some instances be justified on the basis of technological development but can also constitute avoidance of obligations.

1401. Inefficiency in production, is a problem that can arise when there is no effective competition on a market. When a company is not subject to constraint by competitive pressure, this can lead to the company making little effort in many areas of operations such as with respect to cost restraint, quality requirements and new investments. These problems have not been conspicuous on Market 3a in this country, but they could possibly arise if competitive pressure were to decrease, or with the lifting of obligations, particularly where only the Mila electronic communications network is in place.

10.2.5 Further on competition problems related to Market 3a in this country

10.2.5.1 In general on status of the market

1402. In the previous sections the main problems likely to arise if no obligations are in force on Market 3a, have been described. In addition to these problems one can identify various aspects of the real situation today which may be categorised as competition problems on Market 3a and related markets, both with respect to market structure and to behaviour of parties to the market. Then a number of cases that can be considered competition problems will be

described that have arisen in recent years on the relevant wholesale markets and downstream retail markets, some of which have ended with decisions by the PTA or the CA or by the courts.

1403. The market for local access in this country is characterised by considerable oligopoly. Only one company, i.e., Mila, controls an access network with close to national coverage. Competitors are not in place everywhere in the country but are each operating in their own operational territory which is bounded variously by the municipality borders in question or the operational territory of the utility company, which can cover several municipalities. GR and Tengir now operate outside the utility service territory in question of their owners, but only in specific regions. There is no location where more than two parties are competing on Market 3a and in many locations outside the most densely populated areas, Mila is the only player on the market. Mila has about 57% market share of Market 3a at a national level and therefore has a huge advantage over other parties to the market.

1404. Though market share has decreased since the last analysis was made in 2014, Mila's dominance is still substantial. The company has recently been making great advances in development of fibre-optic networks, particularly in urban areas, but also by deploying fibre-optic networks with state aid, and by purchasing or by long-term leasing of fibre-optic networks in country areas. The market is characterised by substantial entry barriers where it has proved rather difficult for new companies to establish themselves, and it took a long time for GR and Tengir and costs were high. While companies like GR and Tengir have for many years widened their fibre-optic network to households in their operational territories, Mila emphasised upgrading its copper local loops until just a few years ago when the company launched a major effort in deploying its own fibre-optic network to households and companies in 2016. As the market is very small, with respect to the number of end users compared with most other domestic markets in the EEA, new investments are risky and there are few who have the capability of developing a network in competition with Mila, and furthermore, this takes a very long time. It is therefore likely that the Mila dominance in market share will remain in place, at least for the time being and there are certain indications that this dominance could strengthen even further in the lifetime of the analysis.

1405. Since the last analysis was published in 2014, GR has increased investments in its fibre-optic network and its service area now covers a large area in Southwest Iceland. GR now has about 36% share of the wholesale market. This development by GR has however not resulted in Siminn and Mila having felt obliged to reduce their retail prices in the GR operational territory. As will be further explained in Section 10.2.5.6 here later (Siminn Group, pricing policy in wholesale and retail), there are indications that the Siminn Group keeps prices low, or sometimes even subsidises on Market 3a and 3b wholesale Market 3b with high markup and thus profit on the line charge at retail level in connection with household connections and with a certain behaviour in connection with corporate connections, and thus significantly constrains the competitive basis of independent network operators such as GR and Tengir. The PTA does not however have definitive proof of this, as the PTA has not analysed these aspects. It is first and foremost the CA that deals with problems that may be related to predatory pricing, though this is of course one of the issues examined by the PTA as potential competition problems in its market analyses. The PTA must take into account how the Siminn Group can leverage its market power and the fact that the Group is vertically integrated. It is at least clear that the Group is in a position to take advantage of the situation that now pertains on the market and practise the cross-subsidising described above. The CA is now processing to cases that relate to alleged overpricing by Siminn of line charges. GR and Tengir are not vertically

integrated electronic communications companies and therefore do not have the option of answering such behaviour by the Siminn Group, if it were in place.

1406. The Mila market share has decreased from 83% since the last analysis to about 57% at the end of 2020 and the company therefore still has a strongly dominant market share. The incentive for the Siminn Group to sell products that are not regulated appears not to have been significant in recent years¹⁷⁹ and in addition to this the Mila pricing of fibre-optic connections on Markets 3a and 3b, both to households and companies, have raised various questions as recounted above and which will be explained in more detail here below. One can however also note that certain types of service are offered by the Siminn Group that are not subject to obligations. Mila has the most widely distributed network in the country and electronic communications companies are dependent on access to it if they wish to provide services throughout the whole country. Development of the market has thus not given reason to assume otherwise than that the need to maintain obligations on the relevant market is as great as it was after the previous analysis, if not greater, because of the above specified price policy and other behaviour by the Siminn Group.

1407. Vertical integration of the Siminn Group is conducive to impairing competition in a number of ways. On downstream markets, the Siminn Group, also has a large market share and this applies both to Market 3b and the retail market for Internet connections. In addition to this Siminn has a dominant position on the retail market for bundles, where electronic communications services and TV services are bundled together. Markets strength on Market 3a affords the Group various opportunities and devices to increase their competitive advantage on downstream markets, but this can also work in the other direction such that the strong position of the company on retail markets, including for line charges, which in recent years has among other things manifested itself in great success of the Heimilispakkinn bundle, directs customers to the Mila access network and has thus slowed down the departures from the Mila network, despite a very substantial increase in deployment of fibre-optic by independent operators since 2014. GR states that it struggled at first on the market for corporate connections (Market 4) despite endeavours to penetrate the market. There are various indications that this be accurate on the part of GR, and that the Mila position is very strong on Market 4. The Siminn market share of the retail market has however hardly decreased since 2014 and now stands at just under 50%. Various aspects of the Group's behaviour with respect to vertical integration have been examined in recent years and in addition to this, the PTA and the CA have received reports from competitors of the Group about behaviour that in their opinion, constitutes irregular behaviour, as will be discussed further here below.

10.2.5.2 The impact of the strong Mila position on operations of smaller local networks

1408. Mila is as previously stated, the owner of the largest access networks in the country and the only one with close to national coverage. The network was originally based on copper local

¹⁷⁹ There are various examples of how the Siminn Group has not acceded to requests for access, that the Group considered not to be covered by obligations in force. There one can among other things mention the PTA Decision no. 34/2010 and in that case, Mila denied a request for facilities for the NATO fibre-optic, among other things because Mila considered that access not to be covered by obligations in force. PTA Decision no. 28/2011 concerns denial of access to dark fibre in trunk line cables where Mila considered that it was not obliged to do so according to obligations in force. There was a similar situation in Decision no. 38/2012 on Access Option 1 in VDSL with Siminn. One could also mention Decision no. 34/2014 regarding a Snerpa access request to Mila street cabinets and Decision no. 15/2020 on facilities for demarcation boxes in technical spaces. One can furthermore mention denial of access to TV material that has been previously discussed here above.

loops, but Mila has now launched rapid and extensive fibre-optic rollout and the company's fibre-optic local loops and increasing steadily a number, being 77,000 at the end of 2020 and continued vigorous development is planned by the company in the coming years.

1409. During the last years there has been development of local fibre-optic networks at many locations in the countryside. This development is broadly speaking based on two scenarios, on the one hand there are companies owned by utility companies, entirely or partly, that implement the projects, such as GR and Tengir, or they are state funded networks in sparsely populated communities. In addition to this, municipalities and/or local inhabitants have in some instances deployed a fibre-optic network without state aid, such as Snerpa in the West Fjords and Austurljós at Egilsstaðir and surrounding area.

1410. GR operates its own network mostly independent of Mila, but it is worthy of note that many of the smaller networks are not in direct competition with Mila but rather cooperating with the company and in a large number of cases, Mila has purchased their networks or leased long-term. In addition to this Mila has deployed fibre-optic networks in rural areas to a significant degree, with state aid. It seems to prove difficult for the owners of the smaller networks to operate them and their active equipment, which is where Mila has entered in a strong position. Mila is responsible for the operation of GPON connections on over 28 such networks. Mila has deployed, acquired ownership or long-term lease on about 23 networks in addition. This is a total of 51 local networks¹⁸⁰. This has not been an option available to GR because of a lack of its own trunk line connections outside the south-west part of the country and according to the company because of disadvantageous terms offered by Mila for such trunk line connections. Tengir has purchased the Skútustaðahreppur network, in addition to managing and operating bitstream service on the small fibre-optic networks owned by Tjörneshreppur and Fljótsdalshreppur, where connections on those networks are only a few tens.

1411. It could be that is not realistic for owners of the smallest networks to take part in their operation and to invest in active equipment and other necessities to provide retailers and thus consumers with the necessary service. It could thus be that in most instances there are no possible operators available other than Mila, among other things because Mila operates the country's only trunk line system with national coverage. This situation demonstrates the strong Mila position as the only company in the country that operates access and trunk line networks with close to national coverage. This development is also conducive to strengthening Mila's position on the market and results in new investments in smaller networks, not leading to increased competition on the market to any significant extent, and in addition to this these are few connections of the total number of connections in the country.

10.2.5.3 Reluctance of the Siminn Group to provide specific types of access

1412. As stated here above, a vertically integrated company with SMP on a wholesale market can have a tendency to try and transfer this power to a downstream market by refusing access to a specific wholesale service to competitors. Instances have arisen where access is refused or delayed or made difficult in some manner despite obligations on access being in force.

¹⁸⁰ See further in sub-paragraph 87 in Section 6.3 here above, where there is discussion on deployment of networks, deployment plans and network topology with respect to geographical analysis.

1413. In this connection one can for example mention that it proved extremely difficult for some time for companies to be granted full access to the Mila VDSL system (which was then in fact owned and operated by Siminn), during the years 2010-2012. Vodafone, for example repeatedly requested access to VDSL with multicast on Access Option 1 over a period of months, but Mila had only offered Internet transmission on Access Option 3 in VDSL. He needed a PTA decision for the Group to desist from such behaviour, see PTA Decision no. 38/2012. With such access Vodafone could offer its customers access to the company's IPTV system through Mila networks. More specifically, Mila for some time did not offer access to multicast for parties other than Siminn, nor access to Access Option 1 except with major and detailed conditions, among other things with respect to a projection on the number of customers at each location.

1414. In addition to this, companies have been unsuccessful in acquiring Siminn IPTV service over their own bitstream system and it is very important for companies to be able to offer IPTV service on their network, as it is extremely popular among consumers in Iceland. The importance of IPTV distribution is high on the domestic electronic communications market. GR has repeatedly offered Siminn bitstream access that Siminn would use for its IPTV service. It was then not until July 2020, subsequent to the preliminary draft being submitted for national consultation, that Siminn finally made an agreement with GR on such access. It is expected that Siminn will begin to provide service on the GR fibre-optic network during the second half of 2021, but the intention was initially that it would be during the first half of the year. Despite the agreement in question, it is clear that by far the largest proportion of Siminn customers will remain on the Mila network throughout the lifetime of the analysis. Vodafone has also been in dispute with Siminn on access to material owned by Siminn for distribution on the Vodafone IPTV system since the autumn of 2015 but has made no progress. At the same time, Siminn has strongly emphasised the bundling of electronic communications and TV service (Heimilispakkinn), with good results from the time the policy was adopted in the autumn of 2015.

1415. Access to the Mila VDSL system is still important in many parts of the country, as the reality is that in the areas where Mila has developed its VDSL service and where another network based on fibre-optic is not in place, there is no other option for very fast broadband access. Other bitstream providers that used to have their own ADSL system in the area therefore lost a large number of the customers in bitstream service in a few months after VDSL was rolled out in the area in question. Such parties thus found it impossible to upgrade their systems from ADSL to VDSL and compete with Mila in provision of bitstream service but rather needed to move their retail business over to wholesale purchase of bitstream on Mila VDSL systems and have thus moved down the investment ladder.

1416. With respect to other disputes on access, in connection with Mila VDSL rollout one can mention the PTA Decision no. 34/2014 where the PTA considered that Mila had not had the right to deny Snerpa certain specific inter-cabinet connections in Holtahverfi in Ísafjörður and Mila was considered to have breached the non-discrimination obligation by not providing Snerpa with adequate information and instructions with regards to VDSL rollout in the district. The PTA considered the Snerpa access requirements in some instances not to be fair and normal but instructed Mila to resolve that part of the access needs by offering VULA access. From the time that the Mila reference offer was revised with respect to VULA access, no player has seen an advantage in using it, as the pricing is such that economy of scale needs to be so high for it to be realistic and there are few if any such players in this country with the exception of Siminn.

10.2.5.4 Mila behaviour vis-à-vis competitors on Market 3a that do not relate to pricing

1417. The Siminn Group has in some instances demonstrated behaviour that could in the opinion of the company's competitors be conducive to making it difficult for them to find a footing on Market 3a and on the downstream wholesale market (Market 3b). In Section 10.2.5.6 here below there will be a description of the behaviour of the Siminn Group, that is manifested in the Group's pricing policy. Here below, and in the next section there will be explanations of the examples that do not concern prices.

1418. An example of that which relates to the development of a fibre-optic network in Húsavík during the years 2019 and 2020. Tengir¹⁸¹ and Mila were granted permission by the Competition Authority¹⁸² to cooperate on deploying fibre-optic in Húsavík. In the application from the companies to the Competition Authority it was among other things stated that the basis for the cooperation was among other things to speed up user access to fibre-optic in Húsavík, increase customer choice, minimise damage from civil works and inconvenience for inhabitants and to thus support increased competition on the electronic communications market for the benefit of consumers. Furthermore, to provide consumers with a fair share in the advantages gained from the positive economic impact of the cooperation. It was finally stated that the cooperation should not give the parties the opportunity to prevent competition between them as each party would, as before, operate his own independent fibre-optic network and sell service providers electronic communications services in wholesale. The Competition Authority gave its authorisation for the cooperation in question and made no comments on the company's assessment of the impact of the agreement, as it was limited to using the same civil works to deploy to fibre-optic networks that would be technically separated and independent and thus did not damage the basis for competition for the customers in question. It would also be assured that the cooperation was limited to this and did not constitute any collusion on other aspects, such as price or service to customers.

1419. In the light of the above, two fibre-optic access networks were deployed, one owned by Mila and the other owned by Tengir, but the civil works were shared. After Tengir began marketing its fibre-optic connections in the town, it came to light that Mila refused to connect its bitstream equipment with the Tengir fibre-optic as had been the custom in the Tengir operating territory where there are fibre-optic networks owned by both parties, as is the case in Akureyri, Dalvík and Hrafnagil, this means that customers of Siminn, Nova and Hringdu who use Mila endpoint equipment, cannot purchase a fibre-optic connection from Tengir. At the same time, Siminn did not accept a request from Tengir that the company connect to Tengir bitstream equipment in the area, as the company does on the corporate market. Siminn has a very large market share of the retail market for Internet connections in this area, as elsewhere, and this means that the use of the Tengir network will not be as the company expected when it

¹⁸¹ Tengir has a direct commercial connection with end users with regards to, connections to the company's fibre-optic system. The company does, however, not provide any retail service like Internet service, TV service or voice telephony service. Tengir has a sales representative that will contact customers (consumers and companies) and sells them fibre-optic connections. Subsequently an order is sent to the service provider to the effect that the party in question has ordered fibre-optic from Tengir for his electronic communications service, which is done either by Tengir or the customer after having discussed with a Tengir employee. Then the service provider can also send an order directly to Tengir in cooperation with the customer, without Tengir being involved. Service providers have information on where the Tengir fibre-optic is located and can contact customers and offer them a fibre-optic connection with Tengir. Regardless of which way is chosen, the customer pays Tengir directly for the line charge and pays the service provider for other service through the connection.

¹⁸² See CA Decision no. 26/2019 from 8 August 2019.

embarked on the project. Siminn says that it is preparing to make an agreement with Tengir on bitstream access, but this has not yet happened despite the fact that Tengir has long sought such business with Siminn. Elsewhere in the country, where the Tengir network is operating, Mila has up to this point in time set up bitstream equipment on the Tengir fibre-optic as described above.

1420. Before Tengir started the above specified cooperation with Mila, the company conducted an assessment of the marketing basis for the project. Replies were requested from both Mila and Siminn to find out whether customers on Mila GPON would have the option of Tengir fibre-optic in Húsavík.¹⁸³ In the Mila reply, it was stated that no decision had been made in this connection, but that Mila had generally chosen to purchase only access to fibre-optic owned by other parties when the company did not have its own fibre-optic system. Mila could not at this stage provide an answer on future business or service to customers. Should the situation arise where a Mila customer (service provider) asked to have bitstream service through a local loop of another party, then this would be considered. According to the representative of Tengir, it was said at a meeting with Mila prior to the civil works that the same arrangement would be followed in Húsavík as was practised elsewhere in the Tengir operational territory where both companies operated fibre-optic. In an email from a Tengir representative to the Siminn product manager, it was stated that preparation was taking place for deploying fibre-optic at Húsavík, where fibre-optic from both Mila and Tengir would be on offer, and the representative wanted to check with Siminn whether the company would definitely offer its service through the Tengir local loop network at that location. The Siminn product manager answered in the affirmative and said that Siminn would of course take part in the development in Húsavík. Tengir had then, subsequent to the above specified communications between Tengir and Mila, decided to take part in the civil works in question.

1421. Tengir had subsequently made a long-term agreement on hosting for its facilities and made a 12-month binding agreement with customers that were receiving service from Siminn and other service providers which was such that customers that commit themselves to paying monthly charge for fibre-optic for 12 months would receive in-house work at a discount. It soon came to light that requests from the service providers in question were not processed by Mila. When an explanation was requested from Mila, it transpired that the company planned to only use its own fibre-optic in Húsavík, as Mila considered that that served its interests best. Mila made its decisions independent of others, including Siminn, and did not know that company's intentions.

1422. In the light of the above, in the opinion of Tengir, this had represented significant failed assumptions for the above specified joint investment and the company needed to, among other things, invalidate the above specified binding agreement with the customers who were receiving service from Siminn and from other service providers, but the in-house work was nevertheless conducted with attendant losses, as the customers could not use the Tengir fibre-optic subsequent to this. Use of the Tengir fibre-optic system in Húsavík had been much less than the company had planned for the above reasons, while the company had invested significant funds in the project. Mila had subsequently not replied to Tengir questions about the matter and the answers provided by Siminn were to the effect that the company's business system did not allow for connection to the Tengir bitstream system on the residential market in the same manner as on the corporate market. It would take a long time to upgrade the system, but it might be possible to look at that later.

¹⁸³ It is worthy of note that the service providers Siminn, Nova and Hringdu use Mila GPON in this area.

1423. In the opinion of the Tengir representative, Mila had prevented competition in Húsavík on the wholesale markets in question, quite contrary to the intentions in the joint investment in question and to the Competition Authority decision, which authorised the cooperation in question. The current situation in Húsavík is that neither consumers nor service providers that sell among other things, Internet service, can in fact choose whether the Tengir fibre-optic is used, or that of Mila.

1424. In Mila comments on the preliminary draft, which is discussed in more detail in Section 10.2.5 in Appendix B, the company stated that the case had been presented from the viewpoint of Tengir and that the PTA had made no attempt to get the Mila opinion on the “insinuations”, as Mila chose to call the above specified Tengir complaint. Mila said that the fact was that it cost the Mila bitstream system ISK 312 per month to have access to the Tengir fibre-optic outside Akureyri (ISK 212 in Akureyri). This charge was not collected by Tengir for its own bitstream users or for internal use. Mila thus considered there to be a normal commercial viewpoint behind this decision, i.e., to minimise the cost of providing bitstream service. Mila then accused Tengir of dubious business practices, which are further explained in the above specified Section in Appendix B.

1425. Tengir has drawn attention to more issues that relate to Mila behaviour that Tengir states that make things difficult for the company in competition with Mila. Mila had for example announced at the end of February 2020, that an additional charge would be imposed on GPON connections that go through the Tengir network. This could in the opinion of Tengir direct service providers from business with Tengir, as they will need to pay an additional charge for each user connected through the Tengir fibre-optic network that used Mila endpoint equipment. This could hinder competition on the relevant market and on downstream markets. Mila referred to the fact that the additional charge in question was the same as the above specified additional charge that the Mila access system needed to pay for access to the Tengir fibre-optic network. This additional charge was a large part of Mila bitstream charge in the area and the company could no longer absorb this.

1426. Tengir believes that requests for a connection with customers of Siminn and Hringdu that use endpoint equipment from Mila to the Tengir fibre-optic network are not processed reasonably and that work requests are delayed and/or lost. Furthermore, connection to the Mila fibre-optic local loop is a default selection in the service requests system of Siminn and Mila, even where a request for connection originates from a Tengir sales representative. There have been instances where a customer moves home, i.e., from a home where there is only fibre-optic from Tengir available to the home where there is fibre-optic from both Tengir and Mila and the customer in question is automatically connected to the Mila fibre-optic network, despite not having asked for this.

1427. Then, during recent years, Mila had been reducing its business with Tengir and its contractors for on-site service, according to Tengir. Mila had decided to make an agreement with its own contractors in urban areas in the Tengir operating territory but continued to use Tengir contractors in the countryside. This requires two visits to activate the Tengir fibre-optic. It increases the level of complexity, takes more time and increases inconvenience for Tengir customers. This does not happen when Mila uses its own fibre-optic. Siminn customers thus suffer much less inconvenience if they use the Mila fibre-optic. As a countermeasure to this, Tengir has taken on additional costs to complete set up for customers to guarantee them good service. Siminn customers on the Tengir fibre-optic have increasingly been receiving invoices for setup of equipment. Cases regularly occurred where customers received an invoice for an upgrade which should have been free and are dissatisfied with the Tengir sales representative

as a result. This problem does not arise when Siminn customers have been moved from Mila copper to Mila fibre-optic. Mila said there was nothing unusual with Mila deciding to switch partner when it was among other things, more economic.

1428. As has been previously stated here above in the discussion on the Húsavík case, it was stated in emails from Mila to Tengir, that the company generally purchased only access to fibre-optic of other parties at locations where Mila had no fibre-optic. This is however not the case in the Tengir operating territory, except in Húsavík. In the past months, Tengir has regularly requested that Mila offer bitstream service on the Tengir fibre-optic network at Húsavík, among other things because of pressure from Siminn customers in that town, but Mila's representatives have taken the position that they intend to only offer bitstream service over their own fibre-optic at Húsavík, as at other locations where the company has fibre-optic. Mila considers that to be a normal arrangement. Mila had however not informed Tengir formally that the company would move Tengir customers unilaterally from the Tengir network over to the Mila fibre-optic network where both networks were available.

1429. Tengir has pointed out that such a development could have serious consequences for competition in these areas, but considers, however, that Mila is not authorised to cut the business connection between Tengir and the company's customers. Tengir furthermore pointed out the risks that would result if Mila should refuse to connect a new customer through the Tengir fibre-optic network at more locations than at Húsavík where Mila has its own fibre-optic network. Such behaviour would prevent Tengir customers from having access to service providers that only used the Mila bitstream system, including Siminn, which is by far the largest retailer in the country, and which is in a very strong position in the Tengir operational territory. This would mean that these service providers would only have the option of offering the Tengir fibre-optic, where Mila did not have its own fibre-optic network, and in other areas, customers would be moved unilaterally from the Tengir fibre-optic to the Mila fibre-optic. With increased fibre-optic deployment by Mila in the Tengir operational territory, such a policy would have a significant impact on the operational grounds for Tengir, as a large part of Tengir residential customers today had services from Siminn.

1430. From the above, it is clear that the behaviour of the Siminn Group causes various inconveniences and problems for Tengir, which should be seen as competition problems on the relevant market and on the downstream wholesale Market 3b. In this instance, the Siminn group is leveraging its vertical integration. It is clear that Siminn is by far the largest retailer in the country on the related retail market and it seems to be the policy of the Group not to offer service over the Tengir fibre-optic network where Mila offers its own fibre-optic connections, and even VDSL connections unless the customer in question requests a fibre-optic connection instead of VDSL and such a connection is not available from Mila. This situation has also applied up to this point in time with respect to GR though in a rather different manner as discussed here below.

1431. During recent years, Snerpa has deployed about 1200 fibre-optic connections in the West Fjords. Mila has not made an agreement with that company on access to this fibre-optic, despite the fact that Mila has a limited supply of fibre-optic in the area. Negotiations have been ongoing since the beginning of 2020, but progress has stranded or been delayed at Mila. Nor does Siminn provide its electronic communications service through the Snerpa network. Earlier in this analysis, there was a short explanation of the dispute between Snerpa and Mila, see PTA Decision no. 34/2014, where the conclusion was that Mila had breached the obligations in the prior PTA market analysis of the relevant wholesale markets in connection with the Mila

conversion of its copper network in Ísafjarðarbær from ADSL to VDSL. According to Snerpa, this dispute led to the company commencing its own fibre-optic rollout.

1432. Austurljós at Egilsstaðir in East Iceland is a small local electronic communications network that has commenced fibre-optic deployment at Egilsstaðir and surrounding areas. The company has deployed about 200-300 connections and plans to expand its network more broadly in East Iceland in step with its financial capability and circumstances, and according to demand. Mila was less than enthusiastic with regards to a request from Austurljós that it operate its bitstream system on the Austurljós network, and the latter company therefore decided to deploy its own bitstream system on its own fibre-optic network. Nor does Siminn provide its electronic communications service through the Austurljós network. Mila has now announced major plans for deployment of fibre-optic at Egilsstaðir in 2021, but the PTA has no information to the effect that this is planned for other urban kernels in East Iceland, where Austurljós has not commenced deployment.

1433. GR is a Mila competitor in the south-west part of the country and various disputes have arisen between the companies and in reality, between GR and the Siminn Group. Siminn has for example never offered its services through the GR fibre-optic network, despite the fact that GR has often requested this over a period of years and has made various offers to Siminn to join its network. In July 2020, shortly after the preliminary draft was submitted for national consultation, there was however a sudden change in this matter when Siminn and GR made an agreement on Siminn bitstream access to the GR fibre-optic network. The agreement allowed for Siminn commencing the provision of its service over the GR network in the first half of 2021, but it finally commenced in late August of 2021. The PTA considers it rather unusual that Siminn should require such a long time for software development to connect to the GR network. Given this agreement, the PTA considers it clear that the vast majority of Siminn customers will remain on the Mila network, and that a large part of those Siminn customers that will be on the GR network will doubtless come from other service providers that have been on the GR network and are thus not moving from Mila.

1434. The behaviour of the Siminn Group, with respect to refusal of access to TV service has had the effect of directing customers from the GR network and over to the Mila network and to retaining customers on the Mila network, see PTA Decision no. 10/2018, which will be dealt with in more detail in the next section. In this decision, there is a detailed description of Siminn behaviour in this respect, and it was among other things, the conclusion of the PTA that Siminn had at no point in time shown genuine willingness to come to an agreement with GR during the years that the negotiations in question took place.

1435. There have also been disputes on demarcation boxes, and in disputes that have been referred to the PTA in this regard, the conclusion has variously been that the configuration by GR or the Mila configuration had not been according to the rules.

1436. Sharing of civil works for ducts and cable routes has not always been without problems and in most instances, GR and Tengir have deployed their own network without access to the Mila ducts and civil works, though there are examples of joint civil works of these companies. According to the PTA Decision no. 21/2014, an obligation was imposed on Mila to notify civil works with six months' notice for the purpose of making sharing possible. The PTA came to the conclusion in Decision no. 5/2018 that Mila had breached the obligation by not advertising part of its civil works in the Setbergshverfi district in Hafnarfjörður, and that with respect to that part that was advertised, the information given was not sufficiently clear. It was also deemed that Mila had breached the provisions of the access obligation and non-discrimination

obligation by refusing GR access to its local loop ducts in a number of streets and by not respecting non-discrimination between related and unrelated parties. In the decision by the Appellate Committee for Electronic Communications and Postal Affairs number 2/2018, the PTA conclusion was confirmed with respect to the part of the civil works that was not advertised, but the PTA decision with respect to the provision of information on access to ducts was deemed void on the grounds that the obligation that had been imposed with Decision 21/2014 had not been sufficiently clear in this regard. The PTA considers that this conclusion gives reason to clarify the content of the duty to inform in more detail when the decision with respect to obligations is taken in the analysis that is here under discussion.

1437. The PTA considers that the examples given in this section show unequivocally that Mila, and in fact the Siminn Group, has throughout the years employed various methods to make competition difficult for Mila's competitors at wholesale level, despite obligations on Mila. The PTA does not expect otherwise than that such behaviour will continue throughout the lifetime of the analysis and that there is therefore a clear necessity for appropriate obligations on the Group.

10.2.5.5 Cases related to TV service and other retail service

1438. Siminn introduced extensive changes to its TV service on 1 October 2015. The TV station SkjárEinn, which later became "Sjónvarp Símans", was made subscription-free without non-linear visual content accompanying the linear program. At the same time, Siminn launched the media provider Sjónvarp Símans Premium which became a subscription library of content. Siminn also offers its subscribers to view special previews of specific popular series and other visual content, which is subsequently broadcast on the linear TV channel. At the same time, Siminn introduced changes to its electronic communications services by offering the Heimilispakkinn bundle, where subscribers gain access to the home telephone, Internet, TV distribution through the company's IPTV system and access to visual content, among other things the above specified Sjónvarp Símans Premium.

1439. Sjónvarp Símans Premium was only made accessible with Siminn and then with underlying electronic communication networks of the subsidiary Mila, and on the electronic communications networks of the smaller local electronic communications companies in the countryside. The content provider was on the other hand not made accessible to the GR electronic communications network that has operated country's largest fibre-optic network.

1440. The Siminn Group has thus in recent years acquired rights to popular visual content which is marketed under the name Sjónvarp Símans Premium. The most recent addition to this service is English football which Siminn acquired from and including the competition season 2019/2020 for three years. English football is offered in the media content provider as a linear program item. This popular library of TV content is among other things included in the Siminn Heimilispakki, which, as previously stated, is extremely popular with consumers and has doubtless attracted customers of other electronic communications companies, and the large majority of Siminn customers purchase the TV service in question through that bundle. Popular TV material can be used to attract consumers to a specific electronic communications network, or to keep them there, if it is not offered on other networks. Siminn has been deemed to have directed consumers to the Mila electronic communications network by refusing to provide other electronic communications companies with access to the material.

1441. Competitors of the Siminn Group, including GR, have not been successful in acquiring access to the Siminn IPTV system. Siminn has only offered electronic communications companies' resale of IPTV service through Siminn Group/Mila systems. On the other hand, Siminn has categorically refused to deliver its TV signal to other electronic communications companies on other electronic communications networks during past years. In July 2020, there was a change of policy when Siminn made an agreement with GR as described above. In October 2015, Siminn stopped distributing its visual content on networks and IPTV systems other than its own, but up to that time Vodafone had been able to offer Siminn TV content on its own IPTV system, but Siminn terminated that agreement in the preparation for the above specified changes in 2015. Sjónvarp Símans Premium was launched as previously stated, and Siminn did not provide access to that through the GR network or through the Vodafone IPTV system and nor to time shift until Siminn began to offer TV service through an OTT solution in August 2018. Nor has Nova been successful in coming to an agreement on access to Sjónvarp Símans Premium to offer its OTT TV distribution solution.

1442. The PTA took a case related to distribution of Siminn TV content for processing to a certain extent and came to the conclusion in the Administration's Decision no. 10/2018 that Siminn had breached the provisions of paragraph 5 of article 45 of the Media Act by only offering Sjónvarp Símans Premium on the Siminn IPTV system, where customers of electronic communications companies operating on the GR network could not access the visual content. The breach was deemed to have taken place from 1 October 2015 until the Decision was made on 2 July 2018.

1443. Siminn appealed the above specified decision to the courts. With the judgement of the District Court of Reykjavík from 1 July 2020, it was confirmed that Siminn had breached the provisions in question of the Media Act. The grounds for the PTA decision with respect to the impact on GR were confirmed. It was stated that there was no question that the Siminn decision on a changed arrangement for the company's TV service on 1 October 2015 had had the effect that those who used the GR fibre-optic network as an underlying electronic communications network for subscription TV, were unable to access content from the Siminn content provider in a non-linear manner without this transit of telecommunications going through the Mila electronic communications network. This decision must have been conducive to increasing transmissions through the Mila electronic communications network. In the opinion of the court, the Siminn demand for passive access to the GR fibre-optic network had been incompatible with the obligation borne by Siminn, as a media provider, to refrain from directing business to a related electronic communications company, i.e., Mila, and furthermore at odds with the clear objective of the Media Act to the effect that customer access to TV content should be independent of underlying electronic communications networks. The Siminn breach was unequivocal and was still taking place when the PTA decision was made in July 2018, as Siminn had then not yet made an agreement on fair and reasonable access to the GR electronic communications network, such that that company could disseminate content from the Siminn content provider in a comparable manner and on comparable terms to Mila.

1444. On the other hand, the judge did not accept that Siminn had committed a breach against Vodafone, as the PTA had deemed in the appealed decision, by not coming to an agreement with Vodafone to the effect that the company could disseminate the Siminn content in question over its own IPTV system, as was actually the case until October 2015, or to ensure in another manner that customers of Siminn content provider could purchase access to the visual content in question in another manner than by purchasing electronic communications service from Siminn, for example, with an adequate OTT solution. The judge came to the conclusion that

the objective of the above specified provision was not to establish an indirect obligation for one content provider to how another content provider non-linear distribution and sale of material to which the former content provider had acquired rights. The judge also considered that the IPTV system in question was not an independent electronic communications network but rather a system that needed to be supported by some such underlying electronic communications network. Then it is stated in judgement:

“Though one may agree that the operation of an IPTV system for the purpose of distributing visual content is strictly speaking deemed to be electronic communications service, it is nevertheless clear that the operation of such a system is an inseparable part of the operations of the content provider that the customer receives access to by purchasing a subscription and connecting to the system. The system in question serves in reality only the purpose of enabling customer access to the content provider. One must furthermore take into account that the electronic communications service provided for the customer with the IPTV system of a company is insignificant when compared with the media service that subscription to or purchase of access to a content provider has as its main objective.”

1445. The judge then reduced the fine that the PTA had imposed on Siminn from ISK 9,000,000 to ISK 7,000,000. The PTA was not satisfied with this interpretation of the court of the concepts “electronic communications network” and “electronic communications service”, and nor that the PTA conclusion had constituted a duty for Siminn to make an agreement with Vodafone and appealed the judgement to the National Court. Siminn and Vodafone did so also. The conclusion of the National Court can be expected in 2021.

1446. The PTA considers it clear that the Siminn behaviour in question, which took place from October 2015 until August 2018, when Siminn began to offer the non-linear visual content in question over an OTT solution, had had a negative impact on GR operations in competition with Mila and on the operations of Vodafone and of other service providers who were competing with Siminn. Siminn has for example succeeded in maintaining its high market share in recent years, which must be considered a good result, not least in the light of the increased distribution of the GR fibre-optic network, over which Siminn has not yet offered its service. At the same time, Vodafone lost substantial market share. Although active GR connections have increased during the period in question, it is the assessment of the PTA that this is first and foremost attributable to substantial and costly investments by GR in fibre-optic deployment over a period of many years. The PTA has for example data which shows [...].

1447. Siminn reacted to the above referenced PTA Decision no. 10/2018 by offering Sjónnvarp Símans Premium with what is called the OTT solution in August 2018. The PTA examined this solution and came to the conclusion that the OTT solution was inadequate, in Decision no. 27/2000 in November 2019, as the customer had only been able to access the TV service by renting a set-top box from the electronic communications arm of Siminn for ISK 2200 per month, in addition to the subscription for Sjónnvarp Símans Premium. Siminn owned and controlled these set-top boxes which are necessary to be able to use the service independent of network. It was not possible to use devices or equipment, other than the Siminn set-top box. This topology meant that the set-top box connected to Siminn, as the distributor of the TV content, i.e., the Siminn electronic communications section and not the media section of the company. The pricing and the presentation of the service was furthermore, such that Siminn was in fact still directing customers of its media provider to a related electronic communications company. The PTA had considered that the Siminn solution had not proven to be entirely “Over the Top” by making a specific set-top box mandatory for the service and thus, connecting with the electronic communications part of Siminn, i.e., the Siminn IPTV

distribution service. The PTA also came to the conclusion that the Siminn breach had ceased on 2 October 2019, as from and including that point in time it was not possible to consider that it was only the fault of Siminn that the situation in question still existed as Vodafone had then been offered access to the TV content in question but had rejected the offer.

1448. With the ruling of the Appellate Committee for Electronic Communications and Postal Affairs number 27/2019, dated 6 November 2020, the Committee rescinded the above specified PTA Decision no. 27/2019, as the Committee deemed that investigation of specific aspects of the case was lacking, and that arguments were lacking. On 16 March 2021, Vodafone, PTA, Siminn, Mila, Nova and GR brought a case to the Reykjavík District Court to overturn the ruling in question. Vodafone also made the claim that the conclusion should be that Siminn had not ceased to commit the alleged breach from and including 2 October 2019 and that it is effectively still being committed. Nova has also informed the PTA of its dissatisfaction with the ruling in question and there is therefore also a likelihood that Nova will also refer the case to the courts.

1449. Regardless of what the conclusion in the above-mentioned court cases will be, as they concern, as previously stated, interpretation of a provision in the Media Act, the PTA considers it clear that the above referenced behaviour of the Siminn Group has caused competition problems on the market here under discussion, and on downstream markets, and those competition problems still pertain, though to a lesser degree, for reasons explained here below.

1450. As previously stated, Siminn began to offer the above specified OTT solution for distribution of its visual content in August 2018, including Sjónvarp Símans Premium and from autumn 2019 also English football. The uptake of this service has been rather little and in fact only a small fraction of uptake in the company's IPTV system. According to the newest information from Siminn, with reference to end of year 2020, the number of customers of the company in the OTT solution in question was [...], while at the same time, Siminn customers using Siminn TV service over the company's IPTV system numbered 56,824, where the large majority received access through a subscription to the Heimilispakkinn. The OTT solution thus appeared not to be particularly attractive to consumers. The Appellate Committee rescinded, as stated above, the PTA Decision no. 27/2019 on a technicality, and in that decision, the PTA had come to the conclusion that Siminn had breached the above specified provisions of the Media Act until 1 October 2019. There is thus no decision in force that states that Siminn committed a breach after August 2018.

1451. According to Siminn, the OTT solution is the same as the IPTV solution, i.e., basic subscription and then the possibility of adding other subscriptions, such as Sjónvarp Símans Premium, SiminnSport (English football), Siminn Heimur (retransmission of foreign stations), VOD, timeshift, Vodafone subscriptions etc. On 9 February 2021, Siminn had informed the PTA that the company had been testing the AndroidTV app during recent months and in the beginning of February 2021 an experimental app had been made available for AppleTV, which was in the testing phase. It was still the case that it was necessary to pair the apps with a set-top box from Siminn (IPTV or OTT). The next step in development was to design the service, such that it was not necessary to pair the apps with Siminn set-top boxes, and work had been carried out on this development during the past 1-2 years. There were expectations that they would be ready in the spring of 2021. In September 2021 such apps are not available.

1452. In the opinion of the PTA, the above specified innovation in Siminn TV service, and the agreement with GR from July 2020, are likely to significantly mitigate the damaging impact on the electronic communications market, that the arrangement of Siminn TV service has

caused since October 2015. This problem was partly resolved with the above specified Siminn OTT solution in August 2018 and with the Siminn wholesale agreement with other electronic communications companies about English football in the summer of 2019, and even more if the Siminn plans were to be realised for offering an OTT solution without pairing with Siminn set-top boxes. The above specified development does not however change the fact that the Siminn Heimilispakki, where the company's TV service is included, is a very popular bundle that other service providers appear to have difficulties in competing with. The extent to which the damaging impact on competition. In this connection will be mitigated very much depends on when an OTT solution can be provided that will be independent of Siminn set-top boxes and on whether and to what extent, Siminn will use access to the GR network, pursuant to the agreement on this matter, and as stated before, Siminn only started to apply that agreement in late august of 2021, 14 months after it was signed.

1453. The Competition Authority has recently received various complaints with respect to the behaviour of the Siminn Group, in connection with retail service, and they are dealt with in Section 10.2.6 here below. Initially, Siminn adamantly refused to come to an agreement on the sale of English football in wholesale in the spring of 2019 and into the summer but desisted with from behaviour after the Competition Authority published a preliminary assessment of the case. Agreements were made with Vodafone and Nova on wholesale of the material, but Vodafone has complained to the Competition Authority about margin squeeze that the company considers to be manifested in high wholesale price.

1454. With the CA Decision no. 25/2020, dated 28 May of the same year, the Administration came among other things to the conclusion that Siminn had breached two further specified provisions of the above specified settlement between the Siminn Group and the CA and one provision that relates to a ban on specific bundling in another settlement that the Siminn Group made with the CA on 15 April 2015, in connection with English football and Siminn Heimilispakki, and the CA is furthermore processing more complaints that relate to alleged breaches of the above specified settlement.

1455. With its Ruling no. 1/2020, dated 13 January 2021, the Appellate Committee for Competition confirmed that Siminn had breached article 3 of the settlement from 15 April 2015 (the TV Settlement) which banned specific bundling. The Committee confirmed with its ruling that Siminn had, with its selling and marketing of the TV channel. Siminn Sport (English football) through the Siminn Heimilispakkinn, breached the conditions of the article in question in that settlement. In the opinion of the Committee, Siminn had leveraged its position to cause its customers in one type of service to buy or receive Siminn service of another type, for a price or on business terms that could be equated to a condition to purchase these service types together. With marketing which made the TV station Siminn Sport part of the Heimilispakkinn through the content provider Sjónvarp Símans Premium, while at the same time increasing the Heimilispakkinn price insignificantly, one must deem that Siminn had specifically endeavoured to get that group of its customers that had already purchased electronic communications and TV service from Siminn through the above specified service option, to also purchase access to the TV channel in the same manner. The Committee deemed the Siminn breach to be serious, and that Siminn's conduct had been contrary to the provisions of the settlement that the Siminn Group had itself undertaken to respect in its operations. In this respect one had to keep in mind that it was important to comply with the conditions of settlements and to endeavour that its objectives be achieved. Siminn could not have been unaware of the fact that the company's selling and marketing of the TV channel, Siminn Sport could be in breach of provisions of the settlement.

1456. As stated above, the CA deemed in its above specified decision that Siminn had also breached to more specific provisions in the settlement that the Siminn Group made with the CA in 2013 and which was revised in 2015. More specifically, article 19, which prescribes that Siminn and Mila shall ensure that varying service elements shall be sufficiently separated in operations of the companies, also with respect to price, and article 20, which prescribes, among other things that Siminn shall continue to ensure that company agreements with customers on the residential market shall not include a longer binding duration than one month and that if a customer decides to move his custom to another electronic communications company then Siminn and Mila shall ensure that the transfer of service does not have any impact on other terms that the customer has with Siminn. The Appellate Committee agreed with the CA that there were various indications that Siminn had also breached the provisions in question, but nevertheless referred them back for new processing by the CA. The Committee then referred, among other things to the fact that the purpose of the provisions was among other things to prevent Siminn and Mila from using bundling on those markets where they had a dominant position in each instance. This should be understood in such a way that an assessment needed to be in place of whether the company in question had a dominant position on the markets in question. It would not be deemed that there was an adequate investigation by the CA in place in the case of the defined markets in the case and nor whether Siminn had a dominant position in those markets. One must therefore conclude that this part of the case was not fully clarified. The Appellate Committee reduced the fine that the PTA had imposed on Siminn from ISK 500,000,000 to ISK 200,000,000.

1457. In addition to this, a number of companies have complained to the CA about free months and 10-fold data volume in mobile phones in the Siminn promotion and included services of Heimilispakki.

1458. It is likely that with the above specified conduct, i.e., limitation of access to TV service, and the amalgamation of various retail offers with wholesale service of the Siminn Group, that the Group had been exercising its market power to hinder competition, among other things on the wholesale Market 3a, and continues to some extent to do so.

1459. “Real” competition problems, in addition to problems that have not been decided by the PTA, the CA or the courts, are problems that have arisen and have been solved partly or in full with interventions by the PTA and/or the CA. Although problems may no longer be in place after such an intervention, or if they have diminished, they indicate that the Siminn Group has been found to conduct itself in recent years, such that real competition problems have been created. It is not inconceivable that another kind of behaviour of the Group that creates competition problems could arise in the future, if the possibility for this is in place. The PTA reiterates that competition problems do not have to be real or in progress for it to be authorised to impose appropriate obligations on a party with significant market power. It suffices that the possibility is in place. The PTA is forward-looking in its obligations, with the objective of endeavouring to minimise the possibilities for the Siminn Group to abuse its SMP for the purpose of limiting competition and thus damaging consumers.

10.2.5.6 Price policy of the Siminn Group in wholesale and retail

1460. The retail price of the line charge has gradually increased in recent years and the difference between wholesale price of local loops and line charge in retail, has increased steadily. A company that enjoys a strong position on the retail market for voice telephony and Internet service can acquire gross profit in the price difference between the retail price of line

charge and the wholesale price of local loop lease. No company has a stronger position on the retail market in question and Siminn and one can therefore assume that the Siminn Group is in a unique position to increase the line charges in retail without taking competitors and consumers into account.

1461. The wholesale charge that lies behind Siminn Group line charges is subject to price control with respect to the Mila copper network, as the Mila local loop lease on the copper network is cost analysed and subject to endorsement by the PTA. The Mila local loop price for fibre-optic network is not subject to price control, but other obligations such as on access and non-discrimination are in force. Wholesale charges for other access networks such as those of GR, Tengir or local fibre-optic networks are not subject to PTA price control. Local networks that have received state funding must however comply with rules on state aid, among other things with regards to open access to the network and prices are based on benchmarking.

1462. GR complained to the PTA in 2018 about an increase in the Siminn line charge in retail, and maintained that with this measure, the Siminn Group was collecting the cost of Mila infrastructure investment from Siminn customers without Mila increasing its tariff for local loop lease, thus damaging the GR competitive position. This was a breach of the PTA Decision no. 21/2014 (market analysis of wholesale markets for local loops and bitstream) and the PTA Decisions numbers 5/2017 and 6/2017 (review of Mila wholesale tariff for copper local loops and bitstream access through copper network).

1463. More precisely, GR considered that Mila had breached the price control obligation that had been imposed on Mila with the above specified PTA decision from 2014. On the one hand by collecting increased revenue through an increase of retail price for line charges by the parent company of the Group and on the other hand by practising predatory pricing which did not reflect the real cost to Mila of providing wholesale service through the company's local loops. In the opinion of GR, Mila should have increased the prices of both its copper and fibre-optic local loops to meet additional costs from the company's fibre-optic rollout. It was inevitable that this very substantial investment by Mila in fibre-optic should have led to changes in the company's cost base, which then should have been reflected in the Mila wholesale tariff by price increases. The need for price increase within the Group had instead been met at retail level and in this way the Group had leveraged its vertical integration. GR considered that companies in a dominant position on the market bore a strong obligation not to distort competition with their actions, in this instance predatory pricing of service at wholesale level. The obligation for price control in the PTA Decision no. 21/2014 was among other things, intended to ensure the above. Though consumers might enjoy in the short-term receiving electronic communications services at a low price, distortion of competition that under-pricing caused would lead in the long-term to higher prices, lower quality and fewer choices for consumers. This meant that other companies that did not have a comparable financial strength to that of the Siminn Group, could drop out of the market. Pricing of this kind could support oligopoly, with attendant damage for consumers.

1464. Tengir broadly agrees with the above specified views of GR and considers that Siminn gross profit from line charge is abnormally high and the question is whether the Siminn Group is using its size and inhibiting growth or delaying Tengir growth in the Tengir operational territory with abnormally low Mila wholesale prices and is thus able to embark on civil works e.g. in Akureyri, without there being a commercial basis for such.

1465. With the PTA Decision no. 14/2018 dated 10 September 2018, the PTA considered that it did not have the legal authority to intervene in Siminn retail prices, including line charge,

and therefore dismissed the GR complaint with respect to that issue. The PTA price control Decision no. 21/2014 did not cover the Siminn line charge. Siminn was not subject to retail obligations and it was for the Competition Authority to resolve possible problems that arose at retail level. A possible breach of retail pricing by Siminn could therefore not constitute a breach of the Mila price control obligation in question.

1466. The PTA also rejected that the cost base for Mila copper local loops was incorrect. The Mila price for access to copper local loops was based on the company's costs for investment in its copper system, and on operation of the system in accordance with the price control obligation that had been prescribed in the PTA Decision no. 21/2014. This meant that Mila investments in fibre-optic local loops were not in that cost base. For this reason, the PTA rejected the GR assertion that this was a case of unlawful predatory pricing of copper local loops on the basis of an incorrect cost base for the wholesale tariff and referred to its Decision no. 5/2017 that contained a decision on the Mila wholesale tariff for copper local loops. Then it was stated that the PTA was conducting market analysis on the local loop market and would subsequently publish the conclusions of that analysis for national consultation. It would then be dependent on the conclusion of that analysis, whether and which obligations would be imposed on Mila on this market. There would be no decision on the cost base for fibre-optic local loops as they were not covered by the obligation for price control. While there was no price control obligation on Mila fibre-optic local loops, possible competition problems that might result from Mila pricing of fibre-optic local loops would be first and foremost within the remit of the Competition Authorities surveillance. As there was no obligation on Mila that the company's tariffs for fibre-optic local loops should be cost-based, the PTA had no grounds to decide on whether the tariff supported Mila costs from providing this service.

1467. With the PTA Decision no. 8/2019 dated 16 April 2019, the PTA endorsed new prices for Mila copper local loops, subsequent to review and updating of the cost model and the company's wholesale tariff for copper local loops. Monthly prices increased by just under 11% from the PTA Decision no. 5/2017, i.e., from ISK 1406 to ISK 1558. In processing the decision, which mostly took place in 2018, it was stated by Mila that the company's fibre-optic rollout was taking place across the whole country, so it was foreseeable that use of the copper system would greatly diminish in the near future. For this reason, Mila considered it necessary to look to the future, to a greater extent than before, when it came to investments in the copper system. Otherwise, there was a risk that prices would increase excessively as there were investments in the ground that were no longer being used. Mila proposed that investments in investment plans for the years 2018-2020, should be used as a basis.

1468. The PTA conclusion was to use investments and investment plans for two years as a basis as was the custom, i.e., the years 2018 and 2019 in this instance. The PTA stated that Mila was right that given unchanged circumstances regarding the Mila two-year projection, the investment base would be higher than if it were based on a three-year projection. The trend was that copper local loops were decreasing in number because of greater supply of fibre-optic local loops and the Mila supply of fibre-optic local loops had increased significantly. The position on the wholesale market for local loops was that copper local loops were considerably less expensive than fibre-optic local loops¹⁸⁴. This was however not in all instances passed on to the consumers as some electronic communication companies, had increased the line charge to consumers and no longer made a distinction between line charges for these types of

¹⁸⁴ In January 2021 the monthly price for fibre-optic local loops was 36% higher than for copper local loops in the Capital City Area and Akureyri and about 59% higher in other areas. This difference is however not reflected in retail prices of electronic communications companies by area

connections. With this arrangement electronic communications companies profited more, the greater the number of copper local loops they were leasing. For this reason, an increase in wholesale price should not necessarily lead automatically to a corresponding increase in the line charge in retail. This raised questions on what the advantage was of limiting increases in monthly charges for copper local loops in wholesale, and whether this was beneficial for consumers. To maintain too low a price for copper local loops could lessen the incentive for investments in fibre-optic local loops and could be conducive to distorting competition which would have a negative impact on consumers if one looked to the long-term.

1469. The PTA finally stated in the above specified Decision no. 8/2019, with regards to the development now taking place on the local loop market, that the Administration was now working on a market analysis on that market. On the basis of this market analysis, the PTA would examine carefully whether it would be necessary to make changes to the obligations that rest on Mila on that market, among others, price control.

1470. From the time that the above specified PTA Decisions nos. 14/2018 and 8/2019 were published, the Siminn line charge in retail rose even further and is now ISK 3540, including VAT (2855 ex VAT) in February 2021. As previously stated, the wholesale price for Mila copper local loop lease is ISK 1558 at the same time and ISK 2120 ex VAT for fibre-optic in the Capital City Area and in Akureyri and elsewhere, it is ISK 2480. It is clear that the Siminn markup on line charge for copper local loops in recent years is measured in tens of percentage points, and even up to just over 100%. The markup is somewhat less in the case of fibre-optic local loops but nevertheless generous. Given the available wholesale and retail prices within the Siminn Group and the number of users, one can roughly estimate that the Siminn markup on line charge amounts to ISK billions during recent years.

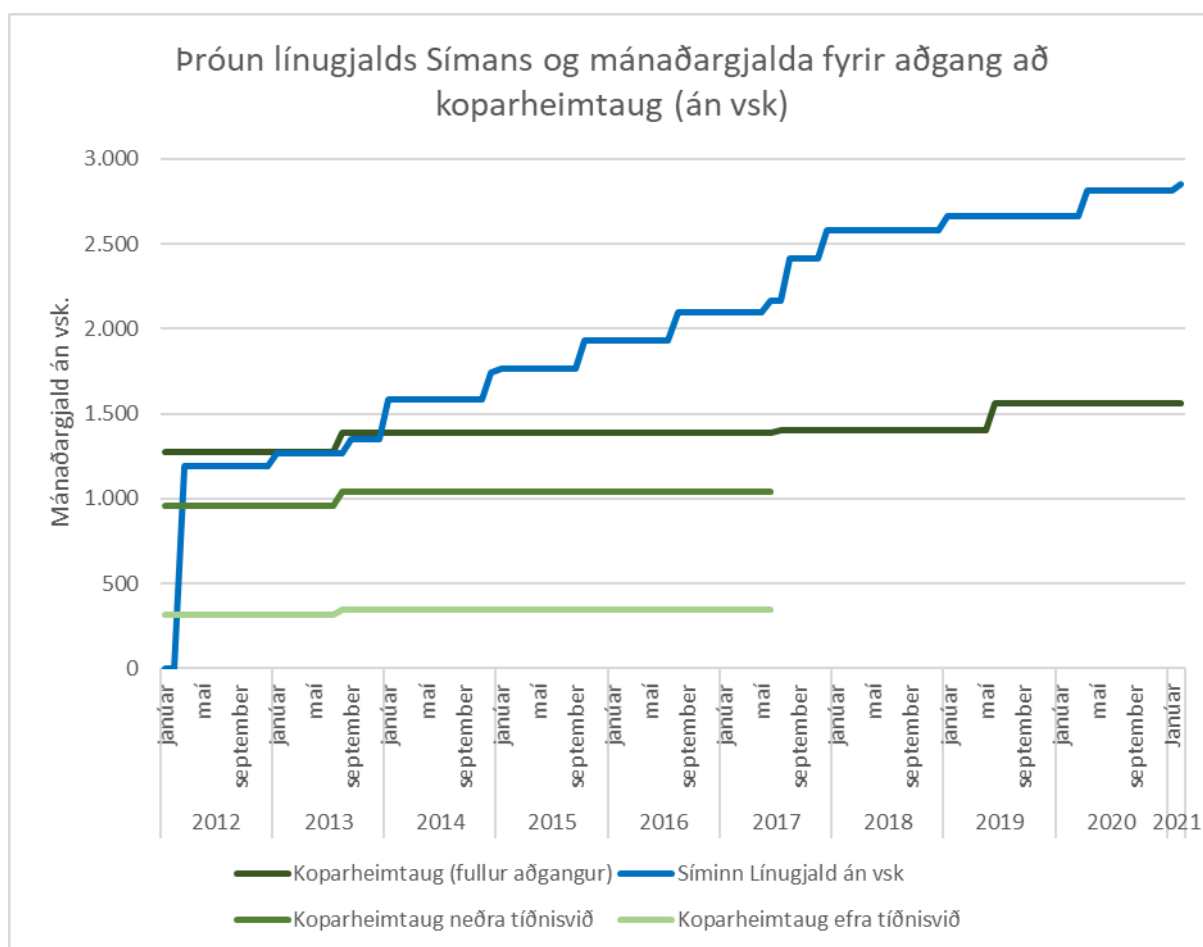
1471. Given Siminn's strong position on the retail market that has hardly decreased since the last analysis in 2014, Siminn can increase the line charge in question almost at will, without any apparent significant cost increase underlying such increases by Siminn.

1472. The PTA considers it not out of the question that the Siminn line charge was increased in recent years and, at least to some extent, used to support the Mila extensive and costly fibre-optic rollout. It is then clear that the Siminn Group benefits from having the possibility of using its vertical integration in a manner that other electronic communications companies in this country do not have at their disposal. In addition to this, such an incentive does exist, though it will not be decided here whether such abuse has taken place. Cross subsidies in pricing between wholesale and retail are among the risk factors for competition under such circumstances. Whether this route was followed or not, should not be a deciding factor as to whether it is appropriate to apply obligations to prevent it, including with the non-discrimination obligation and obligation for price control.

1473. The Mila price for access to fibre-optic local loop with Access Option 1 - which is as previously stated, the access which is purchased in the large majority of cases by electronic communications companies in the case of access to Mila fibre-optic local loops - did not increase from 1 June 2017 until 1 September 2020, for more than 3 years, while at the end of this period the charge is increased by about 7.7% in the Capital City Area and Akureyri, and by 4.6% in the countryside. At the same time the building price index increased by 12.5% which means that Mila prices fell in real terms during this period, while at the same time Mila was conducting vigorous and wide-reaching fibre-optic deployment. This Mila price policy could indicate under-pricing by Mila. The PTA has however not cost analysed these service items at Mila, so the PTA cannot as previously stated, assert whether this was the case or not.

It is possible that this reduction in real terms can be explained by Mila having achieved more economies as the company's fibre-optic local loops increased. It could however be advantageous for the Siminn Group to predatory price certain service temporarily in order to improve its competitive position even further when the Group has the opportunity to recoup such under-pricing in the light of its position as a vertically integrated company.

1474. With respect to pricing on the line charge, the Mila copper local loop wholesale price is ISK 1558/month ex VAT. In March 2020, the Siminn line charge was ISK 2661/month ex VAT which meant that the difference between the wholesale price and retail price was ISK 1103/month. At this time, Siminn leased [...] copper local loops from Mila which means that Siminn gross profit from their line charge was ISK [...] per month at this time. In April 2020, the Siminn line charge then increased to ISK 2815/month ex VAT. and in February 2021 to ISK 2855/month ex VAT. This means that the Siminn line charge and wholesale charge for copper local loops (ex VAT) is ISK 1297/month for each local loop (83% markup). To the best of the PTA's knowledge this is a simple resale which means that one has to consider this to be an extremely generous markup, given what had been the practice in Siminn cost analysis throughout the years, which has been about 10-20% for simple resale, [...]. In the following figure one can see the development of the Siminn line charge and the price of Mila copper local loops:



1475. The line charge was initially resale of the monthly charge for the lower frequency range of copper local loops and the markup was then 24%. As can be seen in the figure, the Siminn line charge increased steadily, and it is therefore clear that Siminn annual profit from the resale is very substantial although copper local loops are on the decline. In the opinion of the PTA, there are many indications that an 83% markup on resale of copper local loops to consumers is a very high markup.

1476. With respect to the access charge of other parties to copper local loops, it is Vodafone that is closest to Siminn in the number of leased local loops while other companies are leasing copper local loops from Mila on a smaller scale. The Vodafone access charge was ISK 2734/month ex VAT in January 2020, while at that time Vodafone leased [...] copper local loops from Mila. Vodafone gross profit from lease of copper local loops was therefore by comparison, quite substantially less or about [...] ISK per month. In February 2020, the Vodafone access charge increased to ISK 2815/month and on 1 January 2021 it increased to ISK 2895/month.

1477. The PTA wishes to reiterate that the Administration does not need to prove that Siminn used profits from the line charge to fund Mila investments in its fibre-optic network, or so that Mila could predatory price its fibre-optic local loops. The PTA is indicating here the possibility that the Siminn Group has to leverage its dominant position to make things difficult for competitors. Mila has been funded by the Siminn Group, which means that the Group, by virtue of its position as a vertically integrated company, has the opportunity to predatory price Mila fibre-optic local loops and to recoup its costs with excessive line charges on copper local loops. No other electronic communications company on this market has such an opportunity for cross subsidy of this nature. Although other electronic communications companies have priced their access charges in a comparable manner to Siminn, none of them leases out anything like the number of copper local loops that Siminn does. The Siminn gross profit from resale of Mila fibre-optic local loops is furthermore greater than the gross profits of other electronic communications companies from resale of Tengir and GR fibre-optic.

1478. The Siminn markup on the line charge in the resale of Mila fibre-optic local loops is 35% in the Capital City Area and Akureyri and 15% in the countryside. Though the Siminn markup on fibre-optic local loops is small in the countryside compared with that in the Capital City Area and Akureyri, this is unacceptable markup for resale in the opinion of the PTA, and these fibre-optic local loops are furthermore only a fraction of the local loops resold by Siminn. The PTA can therefore not see that it is necessary for Siminn to maintain an 83% markup on copper local loops to subsidise the cost of this resale.

1479. In its comments on the PTA additional consultation document, which was submitted for consultation on 30 October 2020, the CA agreed with the PTA conclusion with respect to the Siminn generous markup on line charge and to the performance of the line charge, and the CA is now conducting an investigation on this issue. In the CA case it was stated that [...].

1480. During the years 2018-2019, GR has complained on three occasions to the Competition Authority about the behaviour of Mila and Siminn with regards to wholesale pricing for local loops and the Siminn line charge at retail level. The GR complaint is in short that the Siminn Group predatory prices the wholesale price for local loops, both copper and fibre-optic, on the basis of large investments in access networks during the past years but takes abnormal revenue from the retail level for access to local loops with a markup and pricing in the form of Siminn line charge. This matter is under review with the Competition Authority. In its complaints, GR mainly maintains that this is a breach of the settlement between Siminn and the Competition

Authority, which should have prevented abuse of the Group's vertical integration, among other things with the separation of Mila and Siminn, independence of Mila and separation of service items of the companies, in order that there should be no cross subsidy in pricing that might possibly distort competition at wholesale level.

1481. When the market analysis now in force was conducted in the years 2013 and 2014, Mila had not commenced fibre-optic rollout to any significant extent. Now the situation is that it reaches about 77,000 households and companies in the country at the end of 2020 and further rollout is planned for the coming years. Today, the proportion of sold Mila fibre-optic local loops is about 36% and copper local loops about 64%. It is clear that this development will continue during the lifetime of this analysis, with further roll-out of Mila fibre-optic local loops and further uptake of the service with migration from copper connections to fibre-optic connections. Unchanged PTA obligations on non-discrimination and price control, the latter obligations only cover copper local loops, would thus have increasingly less impact as this development unfolds.

1482. On the corporate market, GR has been competing with Mila products, which are based on fibre-optic in the Mila access network, what are called Ljósína. In recent years, GR has developed a new active access network for companies in order to endeavour to increase their marketing effort on the corporate market in question where Mila has been in a dominant position, according to GR. In a submission from GR to the PTA, it is among other things stated that Mila enjoyed SMP on the market in question pursuant to the PTA Decision no. 8/2014 (Market 6 for terminating segments of leased lines, now Market 4 for high quality central access for companies). GR performance on that market has not been good and far from that which is seen on the residential market. Mila has recently commenced sale of new products on the corporate market that are based on GPON bitstream technology at the same time as the company has been making a strong effort to deploy fibre-optic to households and companies, according to GR.

1483. According to GR, Mila has described its GPON network, such that it was suitable for small and medium-sized companies and that the service on offer was symmetric and up to 1 Gb/s. The PTA has defined fibre-optic local loops based on GPON technology as a separate market, i.e. Markets 4 and 5 pursuant to PTA Decision no. 21/2014 where a price control obligation was not in force there in the same manner as on the Market 6 in question. Mila had three varying prices for fibre-optic to companies. In residential areas, the price was the same as for households, i.e. ISK 1970, GPON fibre-optic local loop to companies were on the other hand at ISK 4980. The price of fibre-optic line on Market 6 was however ISK 13,777, which was based on cost analysed price. The difference was thus from 177-599%.

1484. It was then stated in the GR submission that pursuant to the Mila tariff there were five varying options on offer.

- **Residential connection to company 1:** 1 Gb/s at ISK 2860 (company in residential area, no VLAN and lower priority for faults. According to information from electronic communications companies the reaction was however the same as for standard corporate connections).
- **Residential connection to company 2:** 1 Gb/s at ISK 5,870 (company in commercial area, no VLAN and lower priority for faults. According to information from electronic communications companies the reaction was however the same as for standard corporate connections).

- **Company connection 1:** 100 Mb/s at ISK 10,960 (company in commercial area, VLAN possibility and higher priority for faults).
- **Company connection 2:** 500 Mb/s at ISK 16,960 (company in commercial area, VLAN possibility and higher priority for faults).
- **Company connection 3:** 1 Gb/s at ISK 22,960 (company in commercial area, VLAN possibility and higher priority for faults).

1485. It was then stated in the GR submission that when developing an access network based on PON technology, Mila had the option of locating the PON splitter either in a telephone exchange (central) or in a conduit access pit (near buildings). For example, the PON splitter was located in Mila telephone exchanges Rauðarársímstöð and Engihlíð. The splitter could also be installed at the outset and later whole spliced in the conduit access pit to form an uninterrupted optical fibre for a specific company. The topology could also differ depending on whether it was local loop network in the direction of residential areas or commercial areas. If a GPON splitter was located in telephone exchange, there was no fundamental difference in these two products, i.e., fibre-optic local loop or Ljósnet. In the opinion of GR, it was perfectly clear to Mila that by selling PON corporate products, these two markets were overlapping. It had been clearly stated in communications between Mila and the PTA in the PTA Decision no. 24/2017 (review of Mila wholesale tariff for optical lines in street cabinets (Market 4/2008) and Ljósnet in access network (Market 6/2008)).

1486. It was stated in the GR submission that in the Mila reference offer there was a definition of Mila fibre-optic products in access network. It was difficult to understand from the Mila description, whether this referred to one or more access networks. It was however clear from the description that division into areas mattered with regards to the product offer. According to the Mila definitions, Ljóslína could be the same thing as fibre-optic local loop if TOAL was located in the telephone exchange. In the above specified communications between PTA and Mila in PTA Decision no. 24/2017 it had among other things been stated in Mila's discussion that Ljósnet were in no way different from fibre-optic local loops. The conclusion was that Mila had disagreed with the PTA but had submitted a cost model so as not to delay calculations of lease price for optical lines. As before, Mila seemed to behave in such a manner that optical lines and fibre-optic local loops were the same thing. In the opinion of GR, there was such overlap between these markets that it would not be possible to separate them.

1487. It was finally stated in the GR submission that the situation was now that an SMP operator could arrange his product offer in such a manner that he avoided obligations on the corporate market. In the opinion of GR, the PTA should review the decision that price obligations should not be applied on Markets 4 and 5. GR furthermore considered there to be an urgent need for the PTA to review the cost base and the grounds for the cost base for the Mila fibre-optic access network.

1488. GR has described how the company found it difficult to get a foothold on the corporate market. The PTA does not have sufficiently good data at this point in time to present definitive conclusions on the state of competition on the corporate market. This will have to wait until further analysis has been conducted on Market 4 which will take place later this year. The precise position of GR on the corporate market does not have a definitive impact on the analysis of Markets 3a and 3b, so that will not be examined in this connection.

1489. In its preliminary analysis, the PTA considered that with the extensive rollout of fibre-optic in the Mila access network, the product Ljósína (optical line), which previously was a separate solution and only delivered to individual customers on the corporate market by order on payment of a significant start-up charge, was now part of the company's general access network and that it should be within the relevant market for local access provided at a fixed location, Market 3a. In the same way the GPON bitstream solutions that Mila offered on the corporate market were fundamentally the same as those offered to residences, and some of them are called residential connections to companies, and they belonged to the market for central access provided at a fixed location for mass-market products, Market 3b. There was a considerable likelihood that the same or at least analogous competition problems existed with respect to these corporate solutions as were described for the residential connections.

1490. In the PTA additional consultation dated 30 October 2020, the PTA notified that it would retract this change, with respect to Mila Ljósína. It generally applied to Mila Ljósína that such lines were not normally deployed in the same investment projects as the public local loop network, which was deployed in the comprehensive network in Mila's fibre-optic rollout. They still required a special order and as appropriate, were only deployed against a share of start-up costs. There were thus other criteria for Mila investment in the Ljósína in question than in the general distribution of fibre-optic in the company's access network. Parties to the market raised no objections to these changed PTA plans.

1491. With the above in mind, it is the assessment of the PTA that the Siminn Group has both the incentive and the possibility to use its vertical integration in such a manner when pricing its wholesale and retail goods that will result in competitive imbalance, whether this is at retail or wholesale level, all depending on where the main battle line lies in competition in the electronic communications market. In the short term, the Group could endeavour to price its wholesale products low in order to make it difficult for competitors at wholesale level, and even to force them from the market. It is clear that such would later in the long-term lead to higher prices at wholesale level and less competition on downstream markets, higher prices to consumers and fewer options for them.

10.2.6 A case that the Competition Authority is processing vis-à-vis the Siminn Group

1492. Apart from the above specified line charge case, the Competition Authority has a large number of submissions for processing that relate to the Siminn Group and that could concern the provisions for banning in competition law and/or settlement with the Competition Authority that Siminn agreed to in 2013 and which was revised in 2015. After the preliminary draft was submitted for consultation, the CA made Decision no. 25/2020, which relates to the Siminn tying sales/bundling of English football in Sjóntarv Símans Premium and Heimilispakkinn, which has been explained here above. The CA has also announced investigations in other cases. The cases are:

- Bundling with English football in Heimilispakkinn.
- Margin squeeze in Siminn wholesale of English football.
- Siminn free offer of Heimilispakkinn and Sjóntarv Símans Premium (free 2-3 months).
- Wholesale refusal of English football until the turn of the month of July/August 2019.

- Other tying sales/bundling that Heimilispakkinn constitutes.
- Possible amendments to the settlement between Siminn and the Competition Authority.

10.2.7 Settlements between Siminn Group and the CA

1493. The Siminn Group has made settlements with the CA that are among other things, intended to mitigate the impacts of vertical integration. The SE decisions now in force with respect to CA settlements with the Group are number 6/2015, which mainly deals with separation of operations of Mila and Siminn and number 20/2015 which sets conditions with respect to Siminn TV service.

1494. It is the assessment of the PTA, see discussion here above, that the settlements have not prevented the Siminn Group from leveraging the power inherent in vertical integration. Among other things, one can mention that Siminn competitors have long complained to the CA about behaviour that they consider to be a breach of the above-mentioned settlements. In a ruling by the Appellate Committee for competition number 1/2020, there was discussion on alleged breaches of both of the above specified settlements. A breach of the settlement, pursuant to Decision 20/2015 was confirmed in the ruling and an alleged breach of the settlement, pursuant to Decision 6/2015 was referred back to the CA because of a fault in case procedure.

1495. The PTA has indicated various examples here above of Siminn having denied competitors wholesale access in instances where the Group has maintained that the access in question could not be directly categorised under obligations and conditions in force. Regardless of whether the relevant access is finally judged to be subject to obligations or CA conditions or not, this behaviour is generally conducive to inhibiting competition.

1496. The PTA furthermore considers that despite the settlements in question, the Siminn Group has for example the possibility of forming a price and investment policy in such a manner that could benefit the Group in competition and equally make things difficult for competitors. There one can for example cite the pricing policy which has been in practice with respect to line charge and the Mila policy to almost only commence deployment of fibre-optic local loops in areas where other parties have commenced deployment of fibre-optic in competition with the Mila copper network, unless state aid is paid. Pursuant to paragraph 3 of article 5 of the above-mentioned settlement, Siminn has a certain latitude to form policy for the Group as a whole, which takes into account its overall interests, though certain constraints are imposed with respect to intervention in Mila commercial policy and to Siminn return on performance requirement to Mila, in paragraphs 1 and 2 of the same article. The strikingly candid Siminn comments that appear in the comments to the preliminary draft and the comments on the additional consultation document, where Siminn unequivocally protects Mila's interests, and does not behave like an independent service provider that in general would benefit from obligations on Mila, confirm that Siminn protects first and foremost the interests of the Group.

1497. There is further discussion on the content of CA conditions, particularly pursuant to Decision no. 6/2015 in Section 10.4.2, where individual conditions are compared to obligations pursuant to the Electronic Communications Act and where the need for obligations is assessed in the context of the conditions.

10.2.8 Summary and conclusions on competition problems related to Market 3a

1498. Obligations are imposed on companies with significant market power with the aim of combating real and/or potential problems in the field of competition on the market in question, and on corresponding wholesale markets and related retail market. Problems in the field of competition, with the exception of problems that can derive from market structure, refers to any kind of behaviour by a company with SMP, which is intended or leads to competitors being forced out of markets, which prevents potential competitors from entering the market and/or damages consumers' interests. When obligations are applied pursuant to the Act on Electronic Communications the reason does not need to be that a dominant market position, is being leveraged and it is not a criterion that the competition infringement has been committed, but it suffices that competition problems could possibly arise from the circumstances, among other things because of specific market structure, that are detrimental to the market.

1499. In the previous sections, many potential and real competition problems related to Market 3a were described. The problems that are likely to arise and that impact on downstream wholesale and retail markets if obligations were not in place on the market, were related firstly to vertical integration and the great strength of the Siminn Group, and they could for example be manifested in refusal of access, discrimination in pricing, cross subsidies, damaging underpricing, delays in negotiations or, delivery, abnormal requirements to counterparties, discrimination in quality, discrimination in provision of information or abuse of information from a counterparty.

1500. Second are problems related to SMP on the relevant market and that arise on the same market and on the downstream Market 3b and they are particularly of three types: entry barriers and abuse vis-à-vis competitors on the relevant market, abuse vis-à-vis competitors and inefficiency in production. These are on the one hand problems that relate to market structure, which is characterised by the vertical integration in the Siminn Group, and to its strong position. Various circumstances are described there that can lead to incentive and possibility for the Siminn Group to leverage its market power and position, among other things in pricing of service within the Group, to impede competitors on the relevant market. On the other hand, examples are named of behaviour that it is clear the Group has demonstrated and that has such an impact or has had such an impact in recent years.

1501. Mila controls the only local loop network with close to national coverage and is in some locations the only party on the market. Despite the fact that in some areas, new network operators have entered, Mila remains with a dominating market share at national level. At the inception of competition, Mila almost exclusively used in its copper network, which was upgraded regularly with the newest technology on offer at any given time. In recent times, Mila has increasingly and rapidly developed and purchased fibre-optic networks.

1502. Substantial barriers to entry exist on the market in this country because of its small size. It is such that there are never more than two network operators competing at the same location with the exception of Reykjanesbær where there is also a cable system, and at some locations Mila is the only one on the market. Most network operators are dependent on Mila with respect to various procurements such as facilities, trunk lines and bitstream. Mila has in some instances shown a tendency to impede such access.

1503. It is the PTA conclusion that Mila would have the opportunity to use its vertical integration by transferring market power from Market 3 a to downstream markets if obligations were not in place at wholesale level. The Siminn Group has also, as previously stated,

endeavoured to use vertical integration by leveraging the retail level to strengthen the position at wholesale level, e.g., by refusing to deliver TV content to other networks. There are also various indications that the Group has used an abnormal price policy that can make it difficult for competitors on the relevant market, if confirmed.

1504. Mila market share on Market 3a is still very high, about 57% at national level and the Siminn market share of the retail market now stands at just under 50%, which means that the Siminn share has hardly decreased since the last analysis in 2014. Mila market strength on Market 3a and the Group's vertical integration are conducive to inhibiting competition both at wholesale and retail level and thus detrimental to consumer interests.

1505. With all the above in mind, identified and potential competitive problems are no fewer now if not more than in the last analysis. Though the market structure has only changed at wholesale level, among other things with a smaller Mila market share on the relevant market, there has been little change at retail level, and if anything, the development has been negative with respect to various elements. The possibilities and incentive for the Siminn Group to use its market power is no less now, and the Group's behaviour reveals serious competition problems. It has been recounted that the Competition Authority is processing quite a number of cases that relate to alleged behaviour by the Group during recent years, that among other things, relate to accusations from other market players to the effect that the Group has used its market power and vertical integration in a manner that is contrary to the ban provision of the Competition Act and/or the settlement made by the Siminn Group with the Competition Authority during recent years.

1506. It is clear in the opinion of the PTA that the various obligations need to be tightened in an endeavour to prevent or mitigate damaging consequences of the competition problems in question. In the last analysis, the PTA e.g., imposed price control on Mila copper local loops and not on fibre-optic local loops. Mila had then hardly commenced fibre-optic rollout. During the last years, Mila has been implementing extensive development of fibre-optic network to residences and companies, which now reaches about 77,000 such parties and the company has announced that this development will continue during the lifetime of the analysis. The situation now is that about 36% of Mila's old connections on the relevant market are fibre-optic connections against about 64% on copper, and it is clear that this development will continue during the lifetime of the analysis. This means that the importance of unamended price control diminishes steadily on the relevant market. Given identified and potential competition problems on the relevant market, the PTA considers that it has no option than to prescribe continuing price control on the Mila copper local loop network, and to impose an obligation for the Siminn Group to withstand an ERT test with respect to the Groups fibre-optic products, as will be explained in more detail here below in Sections 10.7.2 (non-discrimination obligation) and 10.7.5 (price control).

10.3 Obligations in force

10.3.1 Obligations that were imposed with the PTA Decision no. 21/2014

1507. With the PTA Decision no. 21/2014 dated 13 August 2014, obligations were imposed on Mila on the market for wholesale access to access networks provided at a fixed location (then Market 4), and that market is fundamentally the same as Market 3a, though some changes have been made on market definition. In the following subsections. There is a description of the

obligations that were imposed and that will continue to be in force until the market analysis here under discussion comes into force.

10.3.1.1 Obligation to provide access

1508. With the authority in Articles 28 and 34 of the Electronic Communications Act the PTA imposed on Mila the obligation to meet normal and reasonable requests for wholesale access to its copper and fibre-optic local loops and related facilities. It would be problematic to provide more than one VDSL operator access to street cabinets. The access obligation had therefore been resolved with open virtual access (VULA). VULA needed to fulfil conditions related to service and access and they were: Access at each location, access independent of service provided on the line, specific and fixed definition of line capacity, full control of access and service/service definitions and full control of customer premises equipment where shared access is not technically possible, and exemption was granted where open virtual access to sub-loops is offered. As shared access is not technically possible on fibre-optic local loops an exemption is granted where open virtual access is offered. Access to fibre-optic local loops shall be provided from technical space/node point to the distribution frame. The PTA also imposed the obligation on Mila to offer co-location/joint utilisation along with access to support systems and appropriate information and Mila was required to notify all technical migration with advance notice. Mila was to authorise open access for other companies to technical interfaces, communications protocols and other technologies that ensured interoperability of services. Mila was to provide a list of planned excavation and duct activities (Civil Works) with six months' notice.

10.3.1.2 Obligation for non-discrimination

1509. With the authority of article 30 of the Electronic Communications Act the PTA imposed the obligation on Mila that all electronic communications companies that purchase access to local loops, whether copper or fibre-optic, enjoyed the same conditions including price as applied to related parties or to those cooperating with Mila. Quality of access provided to unrelated parties should not be less than quality of access provided by Mila to related parties. The obligation for non-discrimination that the PTA had imposed on Mila would be for Equivalence of Input which was where the company was obliged to offer the same price, use the same service procedures/service systems, the same time limits and publish the same information about the service to related and unrelated customers. Mila was therefore obliged to open those systems that are used within the Siminn Group and that were necessary in connection with local loop leasing for unrelated parties.

1510. The non-discrimination obligation had to be fully implemented no later than three months after this decision came into force. Within this period of time Mila was obliged to submit documentation to the PTA which demonstrated that the non-discrimination obligation had been implemented.

1511. The PTA imposed the obligation on Mila that unrelated parties should be informed about distribution, enlargement or other developments of Mila local loop networks with the same notice as parties related to Mila and this notice should not be shorter than six months. Mila should furthermore give related and unrelated parties the opportunity to influence development of new wholesale products and planned interfaces.

1512. In order to ensure that Mila complied with the above specified non-discrimination obligation the PTA could conduct a technical and/or economic investigation as to whether unrelated parties took care to replicate the product offer of related parties in a sustainable manner (Technical and Economic Replicability). Were the PTA conclusion to be such that unrelated parties could not replicate the product offer of related parties for technical reasons, the PTA could order Mila to change its product offer and/or offer new wholesale products such that unrelated parties could replicate the product offer of related parties with normal commercial criteria.

1513. The PTA further imposed the obligation on Mila to make Service Level Agreements – SLAs with all purchasers of local loops. Such agreements should cover the various service issues that related to non-discrimination in respect of local loop leasing, including orders, delivery, service access, service switching and maintenance. Mila should complete service level agreements with all of its counterparties no later than 6 months subsequent to the publication of the decision on the relevant market which was published on 13 August 2014. All service level agreements should be published openly on the Mila website.

1514. In addition, the PTA imposed the obligation on Mila on to issue a specific declaration on quality guarantees (Service Level Guarantees (SLG)). Such service level guarantees should cover all necessary service issues that relate to non-discrimination in local loop leasing including orders, delivery, service access, service switching and maintenance. Such service level guarantees should among other things prescribe specific fines which Mila must pay to its counterparties should a service level guarantee be breached. Mila should issue the service level guarantees in question within six months from the decision coming into force. Mila should inform interested electronic communications companies about the content of the service level guarantee.

1515. The PTA imposed the obligation on Mila that the company regularly gathered and published specific Key Performance Indicators (KPIs), including factors which related to maintenance services and service switching - for internal transactions on the one hand and external on the other. Mila was to publish the information in question on a monthly basis.

1516. The information gained by Mila from other companies when making agreements for access, or completion of agreements, should solely be used for the purpose provided for and should at all stages be treated as confidential. It was unauthorised to supply information from related or unrelated parties, see article 26 of the Electronic Communications Act.

10.3.1.3 Obligation for transparency

1517. With article 29 of the Electronic Communications Act in mind the PTA imposed the obligation on Mila for transparency in leasing of copper and fibre-optic local loops and open virtual access (VULA) where appropriate. Mila was obliged to publish information related to access to copper local loops, for example on registering local loops, technical descriptions, characteristics of networks, terms and conditions for delivery and use and tariff. Part of this obligation was that Mila was to issue a reference offer for local loops which was to be maintained and updated as required and submitted to the PTA for revision and endorsement.

10.3.1.4 Obligation for separation of accountancy

1518. With the authority in article 31 of the Electronic Communications Act the PTA imposed an obligation on Mila for separation of accountancy. Such separation should constitute as a minimum that the operation of terminating segments of local loops in wholesale be separated in the accounts from other operations. The Mila wholesale prices and internal prices within the company should be transparent, among other things to prevent unjustified subsidies. In its bookkeeping Mila should separate revenue, costs, assets and liabilities for access to local loops. Mila was obliged to provide the PTA on an annual basis with a breakdown of the operational accounts and balance sheet for its local loop operations, which showed a division between copper local loops on the one hand and fibre-optic on the other, along with a statement of the division of indirect costs that were not possible to assign through comparison with other cost items. The above specified statement was to reach the Administration no later than five months after the end of the financial year. Mila should at the same time deliver a report from an independent auditor to the PTA to show that there was correspondence between the Mila description to the PTA on how costs are divided and the implementation of accounting separation by Mila.

10.3.1.5 Obligation for price control

1519. With reference to article 32 of the Electronic Communications Act the PTA imposed on Mila an obligation for price control for wholesale access to the company's copper access networks provided at a fixed location with related facilities. Pursuant to paragraph 4 of article 32 of the same Act the tariff for the access in question provided through copper local loops should be cost-oriented.

1520. When deciding prices, Mila should use historical costs allocated to the relevant service (HCA FAC). Mila should submit the cost analysis to the PTA for endorsement no later than twelve months from the publication of the decision. The tariff should then be reviewed annually in accordance with annual updating of the cost analysis. The Administration is authorised to reject prices that are outside the price range proposed by the EU Commission at any given time. The PTA also had in mind that the tariff should relate logically to Mila's bitstream prices.

1521. The PTA did not impose an obligation on Mila for price control for access to fibre-optic local loops, but on the other hand, imposed an obligation on Mila provide open access to the company's fibre-optic local loops and obligations on full non-discrimination (including EoI), transparency, separation of bookkeeping and cost accounting.

1522. Mila was furthermore unauthorised to apply margin squeeze. Should the margin squeeze test show irregular pricing by Mila then the PTA could prescribe amendments to the Mila tariff.

10.3.1.6 Obligation for cost accounting

1523. Pursuant to article 32 of the Act on Electronic Communications the PTA imposed an obligation for cost accounting on Mila for specific types of interconnection or for access in accordance with a cost-oriented tariff. According to Chapter IV of Regulation no. 564/2011, on bookkeeping and cost analysis in the operations of electronic communications companies, an electronic communications company with SMP on which special obligations have been imposed pursuant to the Act on Electronic Communications should inform the PTA on the

structure of separation in bookkeeping, with respect to income and expenses, among other things for the user network and the backbone network.

1524. The PTA obligation for cost accounting covered those parts of Mila electronic communications operations that were needed to provide access to local loops. Mila should submit to the PTA a description of the cost accounting for fibre-optic and copper local loops which should show among other things cost categories, cost items and their relationship with the cost driver. Mila should submit to the PTA a description of the cost accounting bookkeeping for fibre and copper local loops and related facilities and publish the main cost categories and the rules used to allocate costs. Mila should at the same time submit a report to the PTA from an independent auditor showing that there was correspondence between the Mila description to the PTA of how costs are split and the implementation in the Mila cost bookkeeping system.

10.4 Assessment of impact of existing obligations and need for continuing appliance of obligations

10.4.1 The impact of existing obligations

1525. Obligations imposed in 2014 have assured continued wholesale access to access networks and related facilities and initiated new types of access, such as access to fibre-optic local loops. There are however examples of shortcomings in provision of access and references made to Section 10.2 here above in this connection. Some kinds of access are hardly technically possible to implement or are not financially feasible. It is for example difficult to provide access in street cabinets where VDSL equipment is located and shared access to GPON fibre-optic local loop, or access to part of the local loop is hardly feasible up to this point in time. Existing obligations have by the nature of things had a direct impact on access for electronic communications companies to Mila systems and on the prices offered on the Mila copper network. On the other hand, there are examples of it having been slow to get access to Mila systems in excess of what the obligations prescribed, as is stated in Section 10.2 here above.

1526. It is likely that the obligations that were imposed on wholesale have had some effect on pricing in retail as the price for leasing local loops is a significant factor in the price of retail service such as the fixed fee for fixed line telephones and bitstream connections. It seems, however, that the substantial increase in the Siminn line charge and those of other retailers in recent years is independent of the price for lease of copper local loops. There has been considerable development in technical solutions and in products carried by local loops since the last analysis. In this context one can mention the substantial performance increase in bitstream transmission, which makes benchmarking even more difficult. But one can say that the prices of the main packages during each period have changed little during the period of validity of the previous analysis and seem to follow the consumer price index, though of course download speed and the amount of data included has increased and consumers therefore received more for the money.

1527. In addition to this, market share at retail level has remained relatively stable. The largest three service providers still have a combined market share of more than 90% at the end of 2020 with the proportional division between these parties remaining similar. The Siminn share has remained relatively stable while the shares of its main competitor, Vodafone, has fallen significantly since 2017. Nova, which started to provide fixed line service a few years ago, has achieved good results and appears to be filling the gap that 365 left behind when the company

merged with Vodafone at the end of 2017. Hringdu share has grown slightly during this period. In addition to this, the importance of bundles that contain electronic communications and TV service has increased considerably in recent years and Siminn position is extremely strong in this area, as the company's Heimilispakkinn enjoys great popularity among consumers, and it appears that Siminn competitors find it difficult to compete with this. Up to this point in time, Siminn service has not been on offer on the country's largest fibre-optic network, which is owned by GR, but there will be changes in this respect from and including the second half of 2021, but the PTA expects that the vast majority of Siminn customers will remain on the underlying Mila network. In the Tengir operational territory, where there is both fibre-optic from Tengir and Mila, Siminn has not made an agreement on bitstream access to the Tengir system. The same as the case with respect to Snerpa in the West Fjords and Austurljós in East Iceland.

1528. On the wholesale market, Mila still has great dominance with respect to the number of local loops. Siminn is still the largest lessee of local loops from Mila while Vodafone has leased the second largest number of local loops from Mila in recent years and mainly provides ADSL service on the local loops when Vodafone operated its own ADSL system in competition with the Siminn ADSL system. Vodafone still operates its own ADSL system and for this purpose it leases copper local loops from Mila, but there are now very few connections in operation. The obligations in question seem however not to have resolved the above specified horizontal competition problem on the relevant market and on the downstream wholesale Market 3b with respect to network operators like GR, TT, Snerpa and Austurljós.

10.4.2 Conditions pursuant to the settlement between the Siminn Group and the Competition Authority

1529. In consultation on the preliminary draft of this analysis the comment was made from Mila to the effect that the PTA seem to completely ignore the conditions that Mila and Siminn undertook with the CA Decision no. 6/2013, see Decision no. 6/2015, which was also intended to tackle similar alleged problems resulting from vertical integration of the companies and the market power that the PTA discusses, with respect to access to wholesale and pricing. In the Mila comment, it states among other things that with the settlement, a clear and definitive separation was made between the underlying systems of the Group and service with electronic communications companies related to these underlying systems, and on the other hand retail operations of Siminn, and it was endeavoured to ensure that Siminn and its competitors sat at the same table when it came to access to underlying electronic communications systems and purchase of electronic communications service at wholesale level. With reference to the above specified settlement, and the conditions that Mila and Siminn have undertaken with respect to the CA, Mila could not see otherwise than a solution had already been found for at least part of the competitive matters of opinion of which the PTA has concern at wholesale level. In other words, the Siminn Group potential alleged market power at wholesale level that could otherwise have been inherent in the company's vertical integration, as a result of the above specified settlement between the companies and the CA. Nor could it be seen that the PTA had, apart from this, taken any specific position on whether competition law was sufficient to assure the interests that were at stake.

1530. The PTA would like to begin by noting that as Markets 3a and 3b are in the ESA recommendation on the relevant markets from 2016, an assessment has already taken place on whether competition rules on their own suffice to initiate efficient competition. The conclusion of the EU and ESA is to the effect that the relevant markets fulfil all general conditions for

there being a need to apply specific obligations pursuant to the Electronic Communications Act in order to promote increased competition. The no factors have been identified that can create such a special status for these markets in this country that the above does not apply to them.

1531. It is not correct that the PTA does not take the settlement of the Siminn Group into account in the market analysis, as it is discussed in many instances in the analysis. As is explained in the section on competition problems here above, settlements between the Group and the CA, and obligations in force pursuant to the PTA Decision from 2014, on market analysis in force on the relevant wholesale markets, have not prevented all of the behaviour of the Group that inhibits competition. When the PTA assesses whether there is need to apply obligations, the Administration, assesses how this situation could be if PTA, obligations were not in force, which means that one does not need to demonstrate that an electronic communications company with SMP has abused its position. If such a party has done this, the PTA considers that it is its duty to recount this.

1532. One could also note that competitors of the Siminn Group have complained regularly to the CA from the time that the initial settlement was first made in 2013 and have accused the Group of having breached it with various kinds of behaviour. With its the CA Decision no. 25/2020, dated 28 May of the same year, the Administration came among other things to the conclusion that Siminn had breached two further specified provisions of the settlement and one provision that relates to a ban on specific bundling in another settlement that the Siminn Group made with the CA on 15 April 2015 and the CA is furthermore processing more complaints that relate to alleged breaches of the settlement.

1533. With its Ruling no. 1/2020, dated 13 January 2021, the Appellate Committee for Competition confirmed that Siminn had breached article 3 of the settlement from 15 April 2015. On the other hand, the Committee considered that there had been a procedural fault in the CA procedure with respect to the alleged breach of the settlement between the Siminn Group and the CA, which was completed with the Decisions nos. 6/2013 and 6/2015. The CA is currently processing more cases that relate to alleged breaches of the ban provisions of the Competition Act and alleged breaches of the latter settlement.

1534. The PTA draws attention to the fact that the PTA decisions on obligations and the above specified settlement between the CA and the Siminn Group have applied for many years. When the last PTA decision on Markets 4 and 5 (now 3a and 3b) number 21/2014 was made, the settlement pursuant to CA Decision no. 6/2013 was in force. The PTA considered at that time, despite the settlement, every need to impose obligations which are in many respects analogous to those that the PTA intends to impose now. That the PTA decision was not appealed and is therefore indisputably in force. In 2015, the CA made a new settlement with the Siminn Group and at that time the PTA obligations in question had been in force since 2014. It is clear that the CA did not consider there to be significant overlap between the PTA decisions and conditions, that was set with the decision on the settlement, as if that had been the case specifically prescribed such conditions in the settlement. One cannot see that it had been maintained by the Siminn Group when the settlement was made, by the PTA, obligations tackled in an adequate manner all the issues that the conditions of the settlement was intended to tackle. With reference to this, it is established that neither the authorities nor the Siminn Group considered there to have been much overlap between these two administrative decisions up to this point in time.

1535. Settlements between the Siminn Group and the CA do not tackle all the issues that PTA obligations do, and it is the assessment of the PTA necessary that obligations pursuant to the

Electronic Communications Act apply on the relevant markets in addition to those duties that were undertaken with the settlement. In addition to varying content of the obligation that the PTA plans to impose on the one hand, and on the other hand, of the conditions of the settlement, their implementation and monitoring is conducted in quite a different manner. In obligations set by the PTA, there is considerably more inherent monitoring and prior endorsement of reference offers and tariffs.

1536. Many of the conditions of the CA are inward looking with respect to separation of operations, the structure of the Group and management practices, while obligations pursuant to the Electronic Communications Act relate more to how external transactions are handled, for example, which services shall be offered in wholesale, how they shall be presented to customers, non-discrimination, in supply of service and pricing.

1537. It is appropriate to examine whether the conditions of the settlement, pursuant to the CA Decision no. 6/2015 could have some common ground with obligations with respect to this market analysis, and the main examples are the following:

1) Separation of operations

Pursuant to article 2 of the settlement, full separation of electronic communications networks and electronic communications structures shall be ensured. Then there is a list of various networks and services that Mila should operate.

This condition does not fit with any obligation imposed by the PTA pursuant to this analysis. Pursuant to the law in force, the PTA has no authority to prescribe separation of operations and to intervene generally or specifically about which service is operated in which company.

2) Mila Scope of work

In article 3. It is stated that Mila sells connections, access to related service at wholesale level, but shall not operate at retail level, except in certain specified areas which are exempt.

The same applies to that condition as to what is stated in article 2, that it is not materially the same as any obligation imposed by the PTA, as this is an instance of another provision on separation of operations.

3) Management separation

In article 4, there is provision on various issues regarding managerial separation between Mila and Siminn, such as appointment of the board and competence to be a board member.

Such issues are not part of obligations imposed by the PTA.

4) Independent operation

In article 5. There are provisions on independent operation of Mila, such as with respect to commercial policy, Siminn return on investment requirements to Mila, separation of premises, separation of operations, separation of staff, terms of employment for Mila employees, support service in access to data.

No such provisions can be found in obligations there will be imposed pursuant to this PTA analysis.

5) Economies

In article 6. There is authorisation to integrate projects between the companies that relate to sharing of systems and related facilities such as monitoring.

This is a provision on exemption, and not an actual condition. This provision has no direct correlation in obligations in this analysis.

6) Business between Mila and related companies

In article 7. There is a provision to the effect that if transactions take place between Mila and Siminn, or other companies owned by Siminn, they shall be on commercial terms as if they were transactions between unrelated parties.

This provision has some common ground with obligations for non-discrimination and separation of accountancy in this analysis, but the PTA, obligations go much further, are more detail and cover more issues that relate to parity of connected and unconnected parties and to sales between departments.

7) Access to Mila systems and service

In Chapter III of the text of the decision (articles 8-11) there is discussion on Mila wholesale transactions and their one can find provisions that are more related to obligations pursuant to the Electronic Communications Act than the provisions of the settlement that have previously been mentioned.

Article 8 discusses the duty to respect the non-discrimination and transparency. Related and non-related parties shall be afforded equal access with the same speed of service, conditions, terms, quality and service level. In addition to this, all customers shall have access to necessary information. Mila shall respect confidentiality on the plans of its customers. Though the title of the provision is “Access to systems and service”, there is almost no discussion on the form of access and related facilities that should be on offer. For this reason, it is inconceivable that this provision could replace the access obligation that the PTA plans to impose on the relevant markets.

These conditions relate to issues that the PTA intends to tackle in a decision on obligations. Conditions on non-discrimination in the settlement are much more general than in the obligations. As the PTA, argues in the section on non-discrimination obligation, the Administration considers there to be a need for much more detailed provisions on non-discrimination, where more precise requirements on Mila are set with respect to equal access and wholesale service on the relevant markets. Among other things, the PTA considers there to be a need to define varying measurable factors of non-discrimination, such as Equivalence of Input (EoI), technical re-creation, specific notice to disseminate information on development of networks, service level agreements, quality assurance and key performance indicators. Then there is a provision on the publishing of information that relate to the implementation of these elements.

Discussion on transparency in the CA conditions, in this provision is minimal. In obligations pursuant this analysis there is on the other hand detailed discussion on the implementation of transparency, among other things on the publishing information and of reference offers, along with a detailed description of the content of a reference offer.

The PTA has deemed that there is a critical need for the obligations described in the analysis. It is clear that the provision of article 8 of the CA conditions cannot fulfil this need, as they are of a very general nature.

8) Access for broadband service

Article 9 of the CA provisions prescribes on access to bitstream Mila shall provide Siminn and its competitors with bitstream access with the same conditions as are prescribed in article 8# of this settlement. Access to bitstream shall be provided in such a manner that Mila's customers, whether it is Siminn or Siminn competitor, can use access to this, and provide various types of broadband service, including Internet service, VoIP and IPTV. The same applies should Siminn or another electronic communications company request access, with multicast. Mila shall publish on its web page, information on all electronic communications companies that provide broadband service on Mila electronic communications networks, including Internet service and TV service, in a conspicuous manner and thus ensure that users can choose service provider.

The provisions of article 9 relate to access to Market 3b which is prescribed on in Section 11.6.1 in this analysis. Despite the fact that conditions and obligations are parallel in some respects, the obligations in this market analysis are much more detailed, as the PTA considers there to be a pressing need to prescribe precisely the type of access shall be on offer, the quality, its usability and where delivery takes place. The PTA furthermore prescribes on necessary hosting and support services and provision of information with respect to changes in service. According to this, it is clear that the conditions in article 9 in the CA decision to pertain.

9) Planned changes to systems of service

According to article 10 the obligation is imposed on Mila to inform all its customers about new or planned products or services, changes or plans related to existing or planned services, at the same time and in the same manner. It is specifically stated that this condition does not distort obligations imposed pursuant to the Electronic Communications Act.

In the obligations that the PTA imposed on Mila on the relevant market it is noted as previously stated in the obligation for access, that information shall be provided on planned changes, and furthermore the same as stated in the obligation for transparency, but in a slightly different way. The CA conditions and obligations of the PTA are to some extent comparable with respect to this issue but there is however a difference. For example, the PTA prescribes specific procedural rules for introduction of changes and not only about the dissemination of information.

10) Protection of confidential information

In article 11. The obligation is imposed on Mila to ensure with necessary measures that confidential information to which its employees are party concerning the company's customers does not reach. Siminn, Mila's sister company, or other customers of Mila, with the exception

of those departments where it is authorised that Mila provides support service, if that is necessary in direct connection with the support service in question. It shall be ensured that necessary confidentiality is maintained about this information.

This provision deals with the same issues as the PTA deals with respect to confidentiality in the obligation on non-discrimination. This issue is furthermore dealt with in article 26 of the Electronic Communications Act.

11) Siminn wholesale

In Chapter IV of the text of the decision in the CA decision in articles 12-18, there is discussion on Siminn wholesale.

Those services that the provisions deal with do not belong to Market 3a or Market 3b and thus not obligations on supply of these service items in this market analysis.

12) Other measures to strengthen competition

In Chapter V of the text of the decision in the CA decision in articles 19-22 there are various provisions that are intended to strengthen competition. They relate to the separation of service items, to a ban on agreements that inhibit competition, to the Siminn service desk and competition law plan. These provisions do not deal with any issues that are dealt with in the PTA obligations, with the possible exception of one being able to deem a certain similarity between article 19 on separation of service items and provisions of separation in the obligation on transparency.

13) Monitoring

In Chapter VI of the text of the CA decision in articles 23-24, there is discussion on monitoring of rules of the settlement. A special monitoring committee is appointed in the matter of the Siminn Group, which is intended to monitor the induction of the settlement and compliance with it. There is a specific and fundamental difference in this in the settlement as compared to the PTA obligations. This is a separate committee which has no administrative power but is in reality a monitoring unit within the Group that is responsible for monitoring the settlement while specialised public authority is responsible for monitoring obligations pursuant to the Electronic Communications Act.

14) Various provisions

In Chapter VII of the text of the CA decision. There are various provisions that do not contain direct conditions vis-à-vis the Siminn Group, with the exception of the duty to disseminate the settlement, in article 28.

In article 29 it is specifically stated that it has no effect on the jurisdiction of PTA pursuant to Act no. 69/2003 on those issues covered by the Electronic Communications Act no. 81/2003 and derived rules and decisions on the basis of electronic communications legislation.

1538. From this comparison between the conditions of the settlement and those obligations that the PTA imposes pursuant to this analysis, it can be seen that there is in fact very little overlap between them. The same can be said about the settlement that was confirmed with the CA

Decision no. 20/2015 which relates only to Siminn TV service, among other things, to a ban on specific bundling of electronic communications and TV service.

1539. The above specified settlements have not. In recent years prevented. The Siminn Group from leveraging the power inherent in vertical integration, as is described here above and in Section 10.2.7, despite the fact that efforts were made to control that problem with the settlement.

1540. Settlements have not led to effective competition on Market 3a and Market 3b or on downstream markets. As described in Sections 8, 9 and 3.2.6, the situation on these markets is characterised by Mila and Siminn, SMP. In addition to this, Siminn competitors consider that the Group has repeatedly tried to circumvent the conditions in question, and this has at least in one instance been confirmed by the authorities, and there are more cases being investigated by the CA.

1541. In addition to this it is appropriate to point out that Siminn has requested more than once that the CA rescind conditions of the settlements or make changes to them. One can note that at the beginning of 2021 certain wholesale service that was with Siminn was moved, pursuant to the settlement to Mila, see among other things IP-MPLS service and RA and mobile network distribution. The PTA is not aware that the CA has formally agreed this transfer, despite the fact that it has been implemented. With all of the above in mind, the PTA concludes that it is not possible to support effective competition on the markets in question in another manner than by maintaining obligations pursuant to the Electronic Communications Act as will be described in the following sections.

10.4.3 The necessity to impose and maintain the relevant obligations and the impact of new obligations

1542. In accordance with the principle of proportionality it is normal to assess the necessity to impose the obligations described in Section 10.7 later in this document. The obligations are conducive to achieving the objectives of the Electronic Communications Act no. 81/2003 for effective competition and economic electronic communications and furthermore to support further deployment of fibre-optic networks in this country. In the light of the potential and real competition problems that can arise, exist or have occurred in recent years and that are no less than in the last analysis, see discussion in Section 10.2 here above, the strong position of Mila on the relevant market and of the strong position of the company and of the parent company Siminn, the PTA considers it necessary to maintain all the above specified obligations on Mila and in fact to add an obligation that the Siminn Group withstand an ERT test with respect to the Mila fibre-optic in order to support increased competition on the relevant market and on downstream markets, thus assuring consumer interests. In Chapter 10.7 it will be specifically argued why the PTA considers each individual obligation necessary. In the PTA examination of the relevant market the Administration has come to the conclusion that no other measures can be found that could be as effective in solving the competition problems that exist on the market. In its preliminary analysis, the PTA nevertheless plan to go even further with the ERT obligation in question and impose an obligation for cost analysed prices on the Mila fibre-optic local loops, but subsequent to the additional consultation has retracted these intentions among other things because of considerations of proportionality. Reference is made on this to Section 4 in Appendix C. And to Sections 10.7.2 and 10.7.5 here below. The PTA considers that sufficient restraint on pricing within the Siminn Group should be created with the ERT obligation in question.

1543. The obligation for wholesale access on the relevant wholesale markets is a prerequisite for competition to become active in related retail markets such as on the broadband market and the fixed line telephone market. It is not possible to solve the competition problems described here above in any other way than by imposing the obligation for access. Access barriers prevent competitors from developing extensive local loop networks with national coverage and it is thus a prerequisite for effective competition on downstream markets that they can receive access to the Mila network which has national coverage. The obligation for access is something of a burden on Mila but it is an essential prerequisite for effective competition on the downstream markets. It is in fact necessary for electronic communications companies to gain access to the Mila local loop network in order to be able to offer their customers adequate services across the whole country. The obligation should first and foremost ensure that Mila does not discriminate in making local loop agreements and delay the entry of new companies by extending contract negotiations. It cannot be considered burdensome to deal with all counterparties for local loops in a satisfactory manner, and in addition to this such an obligation has been borne by the company for a long time. Through a connection with the Mila local loop network the companies gain better use of the electronic communications equipment in which they have invested.

1544. The obligation for non-discrimination with respect to access to the Mila local loop network in wholesale is necessary for companies, whether on relevant market or downstream markets can compete on a level playing field with the Siminn Group. The obligation should mean that all electronic communications companies that purchase access to Mila local loops receive comparable services and prices and in this way they competition problems related to possible discrimination will be solved. The PTA considers that the obligation for non-discrimination is not particularly burdensome on Mila, though the obligation will be elaborated in more detail in this instance. The PTA plans now to add to the non-discrimination obligation and the price control obligation an obligation that the Siminn Group withstands an ex ante margin squeeze test (ERT) on the Mila fibre-optic local loops such that it will be ensured that Siminn competitors at retail level can compete with Siminn in prices, but up to this point in time there have been no obligations resting on the Siminn Group, with respect to price for fibre-optic local loops or fibre-optic products at retail level, other than a general non-discrimination obligation on Mila. These additional obligations call for certain inconvenience for Mila and Siminn in the providing of information to the PTA, but the main work in executing the test will be in the hands of the PTA. The addition in question is in the opinion of the PTA not particularly burdensome for the Siminn Group, and much less burdensome than the plans that the PTA had in the preliminary draft for an obligation for cost analysed prices of Mila fibre-optic local loops. In the opinion of the PTA, the ERT obligation is however necessary to ensure restraint. In pricing within the Siminn Group, given the potential and real competition problems that the PTA has described in Section 10.2 here above.

1545. The non-discrimination obligation is necessary in order that other companies can compete with Siminn on the relevant and downstream markets. The obligation should lead to all companies leasing access to local loops receiving comparable services and thus resolving the competition problems described above with respect to issues such as speed of reply that can provide the Siminn Group with a competitive advantage on the relevant and downstream markets. Furthermore, to ensure that Siminn competitors can compete with that company and prices and that there will be sufficient latitude between wholesale and retail pricing of the Group in this respect. The PTA plans to prescribe a continuing and strict non-discrimination obligation on Mila, an arrangement that was also in place because of the settlement between Siminn and the Competition Authority (EoI).

1546. Mila shall also make service level agreements (SLAs), declarations of quality assurance (SLGs) and shall publish key performance indicators (KPIs). These obligations were new in 2014 and required considerable work for Mila but the PTA considers that the elements in question had been necessary to support increased non-discrimination and that they remain so. In the opinion of the PTA, it is not burdensome for Mila to maintain the systems that were built to fulfil these obligations.

1547. The obligation for transparency, among other things the publishing of reference offers, represents a certain inconvenience for Mila. On the other hand, one has to keep in mind that analogous obligations have been in force for many years and a reference offer has already been published and revised on several occasions. The obligation in reality, constitutes maintaining the reference offer and updating it. Publishing a reference offer is in the opinion of the PTA an extremely important part of strengthening competition on the relevant market in the product types based on the local loop leasing on downstream markets. The burden that Mila has to bear from the obligations is not excessive if one takes into account how necessary the obligations are to strengthen competition and the fact that the reference offer is already in place. It is necessary for a company planning entry to the electronic communications market to be able to see the terms on offer with regards to wholesale access to local loops and also for competitors on the relevant market to see the terms and conditions Mila is offering. The obligation for transparency is also necessary to support compliance with the non-discrimination obligation.

1548. The PTA considers it necessary to prescribe separation of accountancy for those companies that have varied operations and a large market share, among other things for the reason that it must be possible to monitor whether non-discrimination is respected with respect to fees to the company's own downstream on the one hand and to unrelated companies on the other. Separation of accountancy is also necessary to be able to determine costs for operation of local loops, both in the form of copper and fibre-optic, and associated facilities in an adequate manner. The PTA considers that it is not possible to use other milder measures if one is to base cost analysis on historical costs. The PTA considers that the obligation for separation of accountancy is not too burdensome, given its purpose, and the fact that such an obligation has been borne by Mila for many years, as it is a normal part of company operations today to separate costs for production/operations of varying products or services sold by the company.

1549. The PTA believes that the obligation for price control is necessary for copper local loops as Mila has limited incentive to offer normal prices at its own initiative as the company is the only party that provides access to such local loops and at many locations it is the only company that can offer broadband access. Abnormal pricing can variously be in the form of prices that are too low, such that competitors that operate their own networks on the relevant market and/or on the downstream Market 3b are constrained, and in the form of prices being too high, which constrains companies that purchase wholesale access to Mila systems if there is too small a difference between the Mila wholesale prices and the retail prices on the downstream market. Without such obligations with regards to the pricing of copper local loops, Mila could arrange its pricing in the manner best suited to the Siminn Group in each instance. The PTA considers that an obligation on price control will lead to more efficient operations on the copper local loop network and will lead to a normal composition of prices and to profit at wholesale and retail level for the Group. Despite the fact that this would constitute inconvenience for Mila, the PTA considers the obligation in question to be necessary to strengthen competition on the relevant market and on downstream markets. It reduces the inconvenience for Mila from the obligation in question that such an obligation has up to this point been borne by Mila, and that the company has regularly conducted such cost analyses throughout the years.

1550. In the last analysis of the relevant market in 2014, the PTA did not impose price control obligation on Mila for fibre-optic local loops. Against this, there was a much stricter non-discrimination obligation which was intended to ensure that goods, prices and processes would be exactly analogous for related and unrelated parties (EoI). The PTA could also conduct an ex-post margin squeeze test on Mila pricing of fibre-optic local loops and prescribe changes to the Mila tariff if the results of the test indicated too small a difference between wholesale and retail prices. The PTA has not conducted such a test and considers it normal to prescribe an ex-ante margin squeeze test on both Mila and Siminn.

1551. Given the very large number of identified competition problems, some of which relate to Mila pricing on the relevant market analysed by the PTA, which is described in Section 10.2 here above, the PTA considered it unavoidable in its preliminary draft to impose an obligation for cost analysed prices on the Mila fibre-optic local loops in this instance. The price control obligation in question were to ensure that Mila enjoyed normal profit from the fibre-optic local loops in question and to ensure more efficient operations on the local loop network and to lead to normal composition of prices and profit at wholesale and retail level for the Group. Despite the fact that this would constitute inconvenience for Mila, the PTA considered the obligation in question to be necessary to strengthen competition on the relevant market and on downstream markets. The main reason why a price control obligation had not been imposed on Mila fibre-optic local loops in 2014 was that Mila fibre-optic rollout had just recently commenced and it was for not to be appropriate to impose obligations on the deployment of fibre-optic local loops to households and companies during such a development phase. These grounds no longer applied as almost all households and companies now had the option of a fibre-optic local loop in this country and it was expected that their deployment would continue for the duration of the analysis if competition on the relevant market and on the downstream wholesale market 3b could flourish.

1552. Subsequent to consultation on the preliminary draft, which took place from 30 April until 10 July 2020, the PTA announced plans in an additional consultation document which was published on 30 October 2020, to retract the above specified obligation for cost analysed prices on the Mila fibre-optic local loops and instead to prescribe that the Siminn Group withstood an ex-ante margin squeeze test (ERT). Among the reasons that decided this changed position of the PTA were issues such as proportionality considerations, that the change harmonised better with the EU recommendations on consistent non-discrimination obligations and costing methodologies from 2013 and thus with practices in Europe, that it would rather support increased fibre-optic rollout in the countryside as there was still some way to go in achieving full fibre-optic coverage in the country, that the Siminn agreement on bitstream access to the GR fibre-optic network and other issues that had changed, had altered the competition environment in this country since the publication of the preliminary draft. There is further explanation of this change in the discussion on the obligation for non-discrimination here above, and in addition to this, it is argued further in Sections 10.7.2 and 10.7.5 here later in this document. One can also refer to Section 4 in Appendix C in this connection, and to various PTA replies in Appendix B to comments from parties to the market that were received subsequent to national consultation on the preliminary draft.

1553. As stated above in the discussion on assessment of necessity and impact of the non-discrimination obligation, where the ERT obligation was covered, the PTA considers that there will be some inconvenience created by this, for the Siminn Group, but this change is nevertheless much less burdensome for the Group than the initial PTA plans to impose an obligation for cost analysed prices on Mila fibre-optic local loops.

1554. The PTA considers that the obligation for price control and for making a cost model is somewhat burdensome and that complying with it entails costs both for Mila and for the PTA. The PTA considers that the obligation for price control and for the cost model will lead to more economical operations on the copper local loop network and a normal price composition between wholesale and retail parts within the Siminn Group, which in the long run will lead to lower prices to consumers and lower prices for service based on copper local loop leasing if competition can flourish. The PTA considers that the obligation will not reduce Mila's possibilities of enjoying normal profit from operating copper local loops and related facilities. Mila has previously made such a model for another of the company's regulated services, so Mila has experience of such work.

1555. The PTA considers that the obligations that the Administration imposes on Mila will maintain and increase competition and mitigate competition problems on the relevant market and on downstream markets in Iceland.

1556. The obligations there were imposed on Mila in the last market analysis of the relevant market in 2014 have not inhibited development of fibre-optic networks, which at the end of the year now cover something over 83% of households and companies in the country. The PTA expects that this will continue to be the case. Despite the fact that an obligation is now added that the Siminn Group withstands and ERT test with respect to the Mila fibre-optic and to Siminn retail service that is based on such connections. As previously stated, price control obligations were not imposed on Mila fibre-optic in the last cost analysis for reasons listed here above, and investment in fibre-optic local loops has been considerable since that time. In the opinion of the PTA, this latitude ("regulatory holiday") returned good results in developing high-speed access networks, but now the time has come, on the basis of the above specified competition problem is, to better assure competition on the relevant market and on downstream markets, regardless of whether it takes place on copper or fibre-optic networks.

1557. The burden that the obligations constitute for Mila should not decide on their imposition. In the opinion of the PTA, the above specified obligations are normal, appropriate and necessary to support effective competition on the relevant market and on downstream markets, and should not be considered unnecessarily burdensome, given their importance in strengthening competition on the markets in question, with respect to those potential and real competition problems that the PTA has identified and described in Section 10.2 here above. This particularly applies after the PTA withdrew its intention to prescribe a cost analysis obligation on Mila fibre-optic and prescribed instead an ERT obligation. The PTA considers obligations to be in the interests of competition in the long-term and that they are conducive to increasing service offers and consumer choice on the electronic communications market as a whole.

10.5 Imposition of obligations pursuant to the Electronic Communications Act

1558. In its analysis of the relevant markets for wholesale access networks provided at a fixed location, the PTA has come to the conclusion that competition is not effective enough and that this situation is primarily a result of Mila's strong position in the relevant markets. The PTA came to the conclusion in Chapter 8 that Mila had SMP on the relevant wholesale market and that it is not considered that there is much likelihood of this situation changing unless appropriate obligations are still imposed on Mila. In this chapter one can find the obligations that the PTA imposes on the company for the purpose of resolving competition problems and

facilitating more effective competition on the relevant market and on downstream markets. Obligations have the main objective of increasing competition on the relevant market and downstream markets and of thus creating conditions for the growth of independent network operators and service providers, both those that are operating on the electronic communications market and potential new parties, for the benefit of consumers.

1559. Given the competition problems described in Section 10.2, the following obligations are in the opinion of the PTA conducive to reacting to issues on the relevant and downstream electronic communications market:

- Obligation for access to networks and appropriate facilities
- Obligation for non-discrimination
- Obligation for transparency
- Obligation for separation of accountancy
- Obligation for price control
- Obligation for cost accounting

1560. In Section 10.7 here below follows detailed discussion on the above specified obligations and the PTA believes that these obligations are both in accordance with the objectives presented in the EU Framework and Access Directives and with the provisions of legislation on electronic communications and that they are appropriate for the period of time that is expected to pass until the market will be analysed again.

10.6 Obligations that vary by geographic area

10.6.1 Guidelines from EU and BEREC

1561. As is stated in Section 5.1 here above, it is stated in an accompanying document to the EU Commission recommendation on the relevant markets that in those instances where NRAs could not identify sufficiently heterogeneous competitive conditions between areas that were sufficiently stable over time, that would justify segmentation of geographic markets, it would be possible to impose varying obligations on an SMP operator that operated across the whole country by geographic area. This would then be a reaction to the existence of varying competition that the SMP operator would face by area, e.g., varying infrastructure competition by area, but the competitive conditions would not be sufficiently different to justify segmented geographic markets.

1562. In the BEREC Common Position on geographic aspects of market analysis from 2014 there is also discussion on the possibility of imposing varying obligations on an SMP operator by geographic area, in order to tackle varying competition between areas, if there were no grounds for segmenting a specific service market into more than one geographic market.

1563. In this document it is however indicated that deregulation could exclude areas with lower development costs (generally urban) from the calculation of average prices in areas where obligations would still be in place (usually rural) and thus increase the regulated wholesale price. This could lead to higher retail prices in those areas where obligations were still in force

or smaller profits for service providers if the retail price of the SMP operator continued to be level across the country. This could lead to less competition in those areas that were still regulated.

1564. It should also be considered the impact it would have on consumers if geographic segmentation of the relevant market resulted in varying prices at retail level between areas or in increasing such a difference. Though this could be explained by a more efficient price setting which among other things better reflected underlying costs, it could be particularly difficult for consumers to understand such a price difference as the lower price was only on offer in some areas. Attention should also be paid to the level of transparency as it could be difficult for consumers to understand what terms were on offer in their area.

10.6.2 The PTA conclusion with respect to varying obligations on the relevant market

1565. The PTA refers to detailed discussion on geographic analysis on the relevant market in Section 6 here above. It was the opinion of the PTA that although there was some difference in competitive conditions between municipalities in this country, there was not such a difference in the market structure and or behaviour of parties to the market that justified segmented geographic markets. It was very important here that it should not be possible to identify varying competitive conditions at retail level, and nor that they should be significant at wholesale level. In Section 5, it was stated that there were less requirements with respect to varying competitive conditions for it to be able to prescribe varying obligations.

1566. Given the basis of the PTA analysis of geographical market in the above specified Section 6, and when one considers the potential and real competition problems that were described in Section 10.2, the PTA does not consider it justifiable to take major steps in this instance on elaborating varying obligations for the two areas that the PTA selected for further analysis.

1567. The PTA considered on the other hand that it was possible to lift three obligations that related to access in this instance on those 17 areas¹⁸⁵ that the PTA defined as areas with greater competition. The obligations in question and that do not apply vis-à-vis Mila in those municipalities are:

- Access to conduits and cable routes.
- Mila's duty to advertise with respect to civil works.
- Rule on 5-year notice to inform about migration in network systems.

1568. In its comments, Mila complained that the obligations in question that PTA planned not to impose on the company in the areas in question, were trivial. The PTA does not agree. It is

¹⁸⁵ The municipalities are: Reykjavíkurborg, Kópavogsbær, Seltjarnarnesbær, Garðabær, Hafnarfjarðarkaupstaður, Mosfellsbær, Akraneskaupstaður, Svalbarðsstrandarhreppur, Grýtubakkahreppur, Tjörneshreppur, Hveragerðisbær, Sveitarfélagið Ölfus, Flóahreppur, Ásahreppur, Fljótsdalshreppur, Rangárþing ytra og Skeiða- and Gnúpverjahreppur. In the preliminary analysis, the areas were only 6, and as the PTA proposed in the additional consultation document to reduce the conditions from three to two and to apply Siminn market share of under 50% instead of 40%, the municipalities where the PTA considers there to be more competition and thus lighter obligations will therefore apply, increased to 17 and now reach about 25% of the country's municipalities, where about 70% of the population lives. The PTA plans to update the list annually, next early in 2022, as of the status at end of year 2021. See more detail in Section 6.4.2 here above.

clear that the obligation for access to ducts and conduits, calls for a significant amount of work and management by Mila and one must therefore consider that it is beneficial for Mila to only have to manage the information that relates to about 30% of households, instead of needing to deal with such provision of information for the whole of the company's network. Mila has also complained about the obligation for the provision of information about the company's civil works so that obligation should be much less burdensome for the company than has been the case up till now. There is also a certain economy in this for the company not to be subject to burdensome obligations in densely populated areas in the Southwest corner of the country and in rural and sparsely populated areas in the countryside with respect to the decommissioning of the company's copper system. What matters most however, and that where the primary subject of the Siminn Group comments, is that the PTA has retracted the obligation on cost analysed prices for the company's fibre-optic local loops, also in areas where there is less competition.

10.7 Imposition and maintaining obligations

10.7.1 Obligation to provide access

10.7.1.1 Access to copper local loops

1569. Pursuant to paragraph 1 of article 28 of the Electronic Communications Act the PTA may instruct undertakings with significant market power to meet normal and reasonable requests for open access to public electronic communications networks, network elements, and associated facilities under certain conditions prescribed by the Administration.

1570. There can be various types of access and pursuant to paragraph 2 of article 28 of the Electronic Communications Act, they can among other things be the following forms of access:

- a. access to specific network elements or facilities, including unbundled access to local loops.
- b. specific service in wholesale which a third party resells.
- c. open access to technical interfaces, communications protocols and other technology that is necessary to ensure interactive service or virtual network service.
- d. co-location or sharing, including sharing of cable channels, buildings or masts.
- e. service which ensures interaction of service with users including intelligent network service or roaming in mobile phone networks.
- f. access to operational systems or analogous software to ensure competition in service offer.
- g. interconnection of networks or network facilities;
- h. access to virtual networks.
- i. access to other essential facilities.

1571. When imposing an obligation to grant access, it is necessary to consider whether the access in question encourages investments in the network and promotes innovation, efficiency and sustainable competition. In paragraph 3 of article 28 of the Electronic Communications

Act it is stated that when deciding to impose obligations pursuant to paragraph 1, the PTA shall take into account whether it is:

- a. technically and economically realistic to use or set up one's own facilities in competition, taking into account market development and the nature and type of interconnections and the access in question,
- b. feasible to provide the access proposed.
- c. justifiable, in view of the original investment by the owner of the facility and the risk taken in making the investment.
- d. to the advantage of competition in the longer term.
- e. inappropriate, considering intellectual property rights.
- f. conducive to increasing the supply of services.

1572. The PTA assessed whether the access requirement is technologically and financially realistic and whether it would be realistic for a competitor to set up his own infrastructure in competition with Siminn, considering market developments and the nature of the access in question. In the light of experience, the PTA considers it quite feasible for Mila to grant the access that is proposed and furthermore it considers it justifiable with respect to the initial investment. The PTA considers obligations to be in the interests of competition in the long-term and that they will encourage an increase in service offers.

1573. Pursuant to item a paragraph 2 of article 28 of the Electronic Communications Act the PTA can demand that an electronic communications company with SMP provide access to specific elements of networks or facilities, including unbundled access to local loops.

1574. The PTA plans to maintain the obligation on Mila to accede to all fair requests from electronic communications companies for local access to a copper and fibre-optic network, whether it is fully unbundled or shared access, along with access to related facilities and service. As it is not possible to provide access to physical local loop, e.g., where VDSL service with vectoring is installed, or on a sub loop in the Mila PON network, the VULA virtual solution which can perform the same functions shall be offered. A reasonable request for full or shared access to local loop is considered to be a request for a local loop that is not in use for another purpose on that day when new use is planned. One must keep in mind that the right of each user to universal services through a network connection node and also the necessity to maintain network integrity.

1575. In the initial analysis the market was limited to copper local loops but now it is technology agnostic and fibre-optic local loops now belong to the relevant market and they differ in many ways in structure and capabilities. For this reason, one has to discuss each type of local network separately.

10.7.1.2 Access to copper local loops

1576. Access to the copper local loop was divided into the following subcategories:

- Fully unbundled loop¹⁸⁶. Contains both access to the lower and upper frequency

¹⁸⁶ "Fully unbundled loop".

ranges of the local loop.

- *Shared unbundled loop*¹⁸⁷. Access for an electronic communications company to the upper frequency range of the local loop with DSL or other analogous technology while access to the lower frequency range of the local loop is used by another electronic communications company at the same time for telephone services.
- *Access solely to the lower frequency range*. Access for an electronic communications undertaking solely to the lower frequency range while the upper frequency range is not being used at the same time.
- *Access solely to the upper frequency range (naked DSL)*¹⁸⁸. Access for an electronic communications company solely to the upper frequency range while the lower frequency range is not being used at the same time.

1577. Fully unbundled access means that the electronic communications company leases the local loop as a whole, that is to say its whole frequency range. When different companies lease access to the two frequency ranges this is considered to be shared access and it is known for one company to provide telephone service in the lower frequency range while another party leasing the local loop uses xDSL technology to provide for example Internet connection on the upper frequency range. The division of the frequency range is implemented with a splitter. Before the advent of xDSL technology the local loop was almost exclusively used for voice telephony. What is called “naked DSL” has increased in recent years and it involves using the local loop solely for data transmission for example in the form of an Internet connection and/or digital TV. The PTA intends to impose obligations in accordance with all subcategories.

1578. As has been previously stated there are two xDSL standards that are most common in this country. They are ADSL and VDSL. VDSL is new technology with more carrying capacity solely through Mila local loops. Siminn is most prolific in providing retail service over, VDSL connections. Because other methods are needed to provide shared access to VDSL then this will be covered separately after discussion on traditional Access Options to copper local loops.

1579. With respect to xDSL, other than VDSL, Mila shall accede to requests from electronic communications companies for the upper frequency range of copper local loops for data transmission even though the lower frequency range is not being used for telephone service.

10.7.1.3 Access to copper sub loops and virtual access

1580. Normally the access obligation for copper local loops is implemented such that the access to sub loops¹⁸⁹, for example in street cabinets is part of such an access obligation. Bitstream systems that require shorter line lengths use such access to sub loops to develop the system from street cabinets to end user. This applies in the case of VDSL systems as operated by Mila and which for this purpose, uses access to copper sub loops and facilities in the company’s street cabinets.

1581. As has been previously stated, it can be problematic to provide more than one VDSL operator with access to a street cabinet. This is among other things because of lack of space in street cabinets and difficulties and costs involved in either enlarging cabinets or installing more

¹⁸⁷ “Shared unbundled loop”.

¹⁸⁸ “Naked DSL”.

¹⁸⁹ “sub-loop”.

cabinets adjacent to the existing ones. There are also technical problems such as crosstalk where the VDSL signals from different users affect each other, such that service quality for all users of local loops in the same multipair cable could be impaired. Vectoring is a technology that reduces crosstalk interference and thus increases the performance of VDSL connections. Mila uses such technology in a large part of its copper network.

1582. In order to meet these changed needs, most regulatory authorities in Europe have imposed obligations for open virtual access to sub loops (VULA¹⁹⁰ or vULL). VULA functionality is to provide a connection with active equipment from the switching station/telephone exchange (node point¹⁹¹) to the home of the end user and it furthermore has the characteristic, which is sought when leasing local loop, i.e., choice of type of retail service, assured bandwidth and control possibilities.

1583. It is clear that if one is to take this into account that it must be possible to use vectoring to increase the capacity of VDSL connections and to ensure the objective for open access to the local loops that use the VDSL standard with vectoring, then the obligations on access to sub loops and virtual access that were imposed in the last analysis need to be maintained. In this connection one has to particularly keep in mind that Mila is almost the only electronic communications company that provides bitstream using the VDSL technology on copper local loops today.

1584. Despite the fact that no electronic communications company in this country has up to this point in time used the VULA solution on Mila copper local loops, the PTA plans nevertheless to maintain obligation on Mila to provide access to the local loop from the technical space/node point to the end user in such a manner that the party leasing virtual access has full access to the VDSL system in question and can control service to end users in the same manner as if he operated his own VDSL system with all those technical and performance specifications needed to provide any kind of service over bitstream including IPTV. As open virtual access should simulate open access, the leasing party receives access to a kind of virtual network/virtual channel that gives him the network facility he requests.

1585. In those street cabinets where VDSL equipment is already in place and where Mila ensures and guarantees that open virtual access has been activated, the PTA grants an exception from the obligation on Mila for access to sub loops while open virtual access is being offered, as the obligation for open virtual access would replace access to sub loops with respect to the local loops in question.

1586. In order for open Virtual access, VULA, to be an adequate substitute for open access to sub loops, five conditions related to service an access must be fulfilled. They are:

- *Access at each location* - Mila must ensure that in each of the street cabinets where VDSL is provided, competitors receive access to local loops. Mila must maintain dynamic registration of those buildings connected to VDSL at any given time and provide access to this register.
- *Access independent of the service provided on the line* - Mila may not discriminate on the basis of the nature of the service transmitted through the line. Mila must ensure that the VDSL system in question provides each service provider with the same kind

¹⁹⁰ Virtual Unbundled Local Access.

¹⁹¹ Aggregation Point.

of current where there is no distinction made between types of services (for example IPTV).

- *Specific and fixed definition of line capacity* - competitors receive the same service as Mila's sister company and Siminn, at any given time for its VDSL service and always receive the performance specified in the agreement.
- *Full control of access and service/service specifications* - service providers must receive access to those systems that specify capacity and service for end users, such as for example the amount of capacity dedicated to TV, telephone etc. and the providers must be able to control the technical and quality specifications required by each service.
- *Full control of user equipment* - the VDSL system operator in question needs to provide service providers with a router at the same price as their own retail or related party would pay. The router must be able to provide all the service that the competitor wishes to provide through the connection such as general Internet service, telephone over Internet connection and digital TV/VoD through Internet connection (ISP, VoIP and IPTV/VoD). In addition to this the competitor needs to receive full access to such a router to be able to set it up according to the service standards he requires. If the VDSL system operator in question (Mila) can provide this service/bitstream on a router owned by a competitor then this requirement can be withdrawn.

1587. Mila is only authorised to limit access to and use of local loops on the basis of fundamental demands that relate to operational security of electronic communications networks in emergencies, its system and in proven instances the operational capability of service systems and protection of data, see the Decision of the PTA from 15 April 2005 where Siminn was obliged to process transfer requests from Og Fjaraskipti (now Vodafone) for ADSL service.¹⁹²

1588. In the light of the above, the PTA intends to maintain obligations on Mila for access for electronic communications companies to the company's copper local loops where the obligations for access shall also apply to copper sub-loops for example from street cabinets into the users' building. Where VDSL equipment has been installed and where it is planned to use vectoring, Mila shall ensure that open virtual access is provided, see discussion here above. Having fulfilled this Mila can acquire an endorsement from the PTA for the cancellation of the obligation for access to sub local loops with respect to these local loops. An exception to the obligation for access to sub-loops is provided where open virtual access to sub-loops is offered, see discussion here above, but only subsequent to endorsement by the PTA. Using vectoring is one main prerequisite for granting an exemption from the obligation for access to sub loop.

10.7.1.4 Access to fibre-optic local loops and virtual access

1589. Because characteristics and network topology are different in fibre-optic networks from that in copper networks it is necessary to deal separately with access obligations to fibre-optic.

1590. In this country, as has previously been stated, there are two types of fibre-optic networks, Point to Point (P2P) and Passive Optical Network (PON). GR and Tengir operate Point to Point networks and some smaller networks in rural areas are also this type. Mila operates a PON

¹⁹² The decision was confirmed with the ruling by the Electronic Communications Appellant Committee no. 3/2005.

network with what is called GPON bitstream system on its fibre-optic local loops.¹⁹³ Mila also operates P2P local loops to a certain extent, first and foremost in rural areas where the company has purchased or assured long-term control over smaller countryside networks.

1591. In the case of both of these network topologies, each end user has his own dedicated fibre-optic local loop from the node point/technical space. In a PON network, the backhaul fibre runs from the node point/technical space to the telephone exchange/equipment facility. The node point/technical space is normally quite close to the end user, particularly with PON topology. In PON topology, the node point is in the form of a passive splitter at the kerbside or in another analogous space, where 32, 64 or 128 users are connected. In such space, the space is very limited and there is often no access to electricity or cooling and access is difficult for the purpose of working on moving individual local loops between those leasing the local loops. For this reason, it can be difficult to lease dark fibre-optical local loop in a fibre-optic network, but Mila does offer such leasing when it is possible to arrange it.¹⁹⁴

1592. Competitors of the network operator can set up their own backbone network to the node point/technical space and have the user end of the fibre-optic connected to his equipment. It is also possible to rent a backhaul fibre that lies from the node point to the telephone exchange.

1593. Today, Mila offers the following access to fibre-optic in its access network:

- **Fibre-optic local loop:** One optical fibre from the location of the optical distribution frame, where Mila has the last optical splitter to the demarcation box at the end user's access address. This location is called #CPOA and is situated at a location where Mila has adequate capacity to provide P2P fibre-optic connection to an end user.¹⁹⁵
- **Fibre-optic local loop on PON network:** Fibre-optic from the end user to a technical facility which houses the interface between the access network and trunk line network. Fibre-optic local loop in PON network is thus a traditional local loop along with an optical splitter and backhaul fibre.
- **Dedicated fibre:** Fibre-optic line (1 or 2 fibres) from telephone exchange/technical facility to the access address of the end user. Product is named Ljóslína.

¹⁹³ Mila has purchased or taken over the operations of many, small networks in rural areas, and they generally have P2P topology, though on those networks Mila develops GPON bitstream service.

¹⁹⁴ See Appendix 2g to the Mila reference offer on access to fibre-optic local loops in access network, 9 August 2016 Section 4; *Fibre-optic local loop: One optical fibre from the location of the optical distribution frame, where Mila has the last optical splitter to the demarcation box at the end user's access address. This location is called TOAL #CPOA and is situated at a location where Mila has adequate capacity to provide P2P fibre-optic connection to an end user.*

¹⁹⁵ According to information from Mila it is known practice, particularly in countryside networks, that P2P fibre local loops are leased out, but these are only a very few local loops. It is on the other hand technically possible to provide other companies with access to fibre-optic local loops on a fibre-optic network with PON topology. P2P fibre-optic local loops are therefore only accessible at those places where Mila has fibre-optic distribution frames and has at least one fibre thread for each space in the relevant area. This applies to most countryside systems and also to a limited degree to urban areas, such as in Skagaströnd and in Leirvogstunga in Mosfellsbær.

- **Backhaul fibre:** One or more optical fibres from telephone exchange/technical facility to FDP, for example for VDSL2 equipment in a street cabinet or optical splitter.¹⁹⁶

1594. Shared access to the local loop is not as feasible in fibre-optic as in the copper network. It is however quite possible to implement and use varying fibres in the local loop cable if there are more fibres than users at each location. If there is a supplier of fibre-optic, such that more than one optical fibre is available from the technical space/node point to some user, two or more bitstream providers could supply one household with service at the same time each on its own fibre. In the light of costs that are seen as line charges on the retail market, one may consider it unlikely that many households or companies will purchase service from many networks at the same time.

1595. It is hypothetically possible to share access to fibre-optic local loops on PON access systems by using wave division multiplex (WDM) for access requests, but one must consider it unlikely that a request for such access will be made during the lifetime of this analysis. One must also consider it a more likely development of the service that Mila uses, WDM technology to further develop its bitstream service, rather than a new company appearing on the bitstream market that provides Mila competition based on Mila's own fibre-optic local loops. Though the PTA considers such shared access to the Mila PON and access network unlikely during the lifetime of the analysis, Mila is nevertheless subject to such an access obligation. Should a reasonable, fair and normal access request be made.

1596. As the optical fibre is whole and continuous between the technical space/node point and end user it is impossible to connect equipment to it on the route in question. This means in other words that access to fibre-optic sub loops is in reality technically impossible. The PTA considers therefore there to be no need to impose access obligations for fibre-optic sub loops between node points and a user.

1597. Service providers that wish to provide service through Mila fibre-optic local loops need to build their own data transfer system with the appropriate equipment and operations that this entails. This includes equipment such as a system centre, equipment in Mila technical facility and user endpoint equipment. There is not yet any party that leases dark fibre local loops from Mila in any quantity for the purpose of competing with the company in the provision of bitstream service.

1598. The PTA plans to maintain the obligation on Mila to provide local access to its fibre-optic network on the relevant market. As a minimum, the services to be found in the Mila reference offer today shall be available, i.e., fibre-optic local loop from a node point to an end user, on GPON, optical fibre from technical facility/telephone exchange to end user and backhaul optical fibre from technical facility/telephone exchange to the node point. There shall also be virtual network access (VULA) available when it is not possible to arrange lease of a physical local loop, but it is subject to endorsement by the PTA that virtual network access is offered instead of physical access. Dedicated fiber, Ljósína, are subject to obligations on

¹⁹⁶ According to Mila, backhaul fibres are only used at those locations where Mila has fibre-optic distribution frames in or adjacent to street cabinets. Mila is only aware of one example where a party outside the Siminn Group has installed network equipment in street cabinets, and in that instance, in a street cabinet, adjacent to Mila street cabinet. If an electronic communications companies request to use backhaul fibre, in connection with that, and Mila reiterated that the backhaul fibre was in this connection used for the purpose of accessing either distribution frame or equipment and if it was possible to provide such access, then Mila would not stand in the way of providing a backhaul fibre. External parties were not purchasing backhaul fibre lines today.

Market 6 (now Market 4), and the PTA has now commenced analysis of that market and the intention is to complete it by the end of 2021.

1599. Should fair and normal requests for other types of local access to the Mila fibre-optic network be made, Mila shall accede to such requests if the access is technically and economically feasible. Should Mila refuse such an access request, this shall be notified to the PTA with appropriate reasons and the PTA will decide on whether the access in question shall be granted.

1600. Mila is only authorised to limit access to and use of local loops on the basis of fundamental demands that relate to operational security of electronic communications networks in emergencies, to the integrity of its systems and in proven instances of the operational capability of service systems and protection of data.

10.7.1.5 Co-location or sharing

1601. According to item d paragraph 2 of article 28 of the Electronic Communications Act it can be required that electronic communications companies with SMP offer co-location or sharing including sharing of cable channels and buildings.

1602. In addition to this there is a general provision that the PTA can encourage the making of agreements on co-location or other kinds of sharing of facilities or of land in article 25 of the Electronic Communications Act.

1603. It can be very costly for new network operators on the local loop market to develop facilities necessary to be able to offer an adequate network. Such costs are in many instances sunk costs. In order to distribute such development costs between the companies in question the cost of civil works and laying of ducts is often shared.¹⁹⁷

1604. The EU Commission has also emphasised that parties to the market provide regulatory authorities with information on where it would be possible to utilise ducts conduits and other structures for the distribution of next generation access networks (NGA).¹⁹⁸ For this purpose the regulatory authorities shall make efforts to ensure that where the above specified facilities exist, they should be open to all.¹⁹⁹

1605. In the BEREC report from 2019²⁰⁰ it was among other things stated that Europe needed significant investment in next generation networks that could support broadband services to meet the needs of households and companies. A significant part of investment in such networks is in physical infrastructure²⁰¹, for example ducts, conduits and masts. Such projects were time

¹⁹⁷ See e.g., BEREC: Report on “Open Access”, February 2011, page 23.

¹⁹⁸ Commission recommendations of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) page 4

¹⁹⁹ Commission recommendations of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) page 12

²⁰⁰ See BEREC Report on Access to physical infrastructure in the context of market analyses, BoR (19) 94, from 13 June 2019. A survey was made on arrangements for access to physical infrastructure in Europe.

²⁰¹ In the report, physical infrastructure was defined in the same manner as in Broadband Cost Reduction Directive 2014/61/EU. This directive was introduced into Icelandic law on 29 October 2019 with Act no. 125/2019 on measures for economic deployment of high-speed electronic communications networks and the law came into force on 1 January 2020. Many European states had considered that the above specified directive would not on its own suffice to ensure efficient access to ducts and conduits of electronic communications companies with SMP

and labour consuming and often depended on permissions. It was often not technically and/or financially realistic to double existing physical infrastructure. Measures aimed at increased use of existing physical infrastructure reduced civil works, and cable work and thus reduced costs of fibre-optic rollout and accelerated such rollout. Such measures then supported increased competition on electronic communications markets and increased non-discrimination. There were many instances of such measures having created a basis for competitors of SMP operators to rollout fibre-optic in competition with them.

1606. It was furthermore stated that an obligation on an SMP operator could be important in the support for increased deployment of fibre-optic networks. It was stated that 26 European states had imposed such an obligation with market analyses, including 25 on the market here under discussion. Most European states had considered that the above specified directive from 2014 on measures for efficient development of high-speed networks would not on its own suffice to strengthen efficient competition on the relevant market and on downstream electronic communications markets. Furthermore, such an obligation in many instances applied both to the access network and with respect to backhaul connections. Further to this, a large number of states have imposed an obligation on access to the dark fibre of the SMP operator where it was not possible to provide access to physical infrastructure, e.g., because of a lack of such infrastructure or because of lack of space in existing infrastructure. In a review of its recommendation on relevant markets that should be susceptible to ex ante regulation, that was completed with the publication of new recommendations on 21 December 2020, the EU Commission had been examining whether NRAs in Europe should define a separate market for physical infrastructure. In an EU consultation document concerning this review, it was stated among other things that the emphasis of NRAs in Europe on such measures had been increasing during recent years. In the final edition of the reviewed recommendations from 21 December 2020 these plans were withdrawn.

1607. With the PTA Decision no. 21/2014, the PTA imposed such an obligation on Mila. In the light of the fact that such obligations have not been used much in this country, the PTA considers it necessary to elaborate this obligation in a detailed manner in this analysis. Particularly to ensure and accelerate rollout of fibre-optic in more sparsely populated communities which do not enjoy such networks and to endeavour to increase competition in such areas where Mila at many locations has a dominant position at wholesale level and Siminn at retail level.

1608. Should the situation arise that an electronic communications company request to install a new cable in a Mila duct or conduit on the market now under discussion, that was not fully used, Mila should accede to this request, given that it was normal and fair. Should a reasonable request to this effect be made by an interested network operator, that was deemed normal and fair, then Mila should prepare a database, which contained precise information on the location and condition of the company's ducts and conduits. It should show among other things, which ducts and conduits are free in part or in their entirety and can thus be used for such access. The database shall among other things, show the above specified information in map form. Mila

and have also imposed, obligations for such access in their market analyses after the directive in question came into force. One can in this context, refer to the fact that in the most recent market analysis by ERST in Denmark on the relevant market, ERST refrained from imposing such an obligation on TDC, which was designated as an electronic communications company with significant market power in that country. The EU Commission raised an objection to this. The PTA considers that the legislation question from 2019 does not ensure, on its own, efficient and effective access to Mila ducts and conduits, among other things because authority is lacking to impose an obligation for cost analysed prices. In the above specified NGA recommendation from the EU from 2010, it is precisely stated that such an obligation is important with respect to such access.

shall give the PTA and interested electronic communications companies access to the database in question. Should older Mila ducts and conduits be in place that are no longer needed, Mila shall remove them for a reasonable charge, if this could result in interested electronic communications companies being able to use the ducts or conduits in question. If an agreement is not reached, the PTA can decide a normal recompense in this connection. Mila shall furthermore, in return for a fair charge, make necessary repairs and improvements to ducts and conduits so that they can be used for this purpose. If an agreement is not reached between Mila and the party making the request for installing fibre in a free duct or conduit, in return for a reasonable charge, the PTA can decide that.

1609. The above specified database shall be available no later than 3 months after the fair and reasonable request has been received from a network operator regarding such access in an area where no party has deployed fibre-optic network. Such a request shall be limited to a clearly delineated area, e.g. municipality or village/town or district at which the interest of the network operators in question is directed in each instance. In other areas where the obligation is in force, such a database shall be available no later than 12 months after a fair and normal request for its building has been made by an interested network operator with regards to a more specifically defined area.

1610. After having received the above specified map data and the above specified information on Mila ducts and conduits, the network operator who is interested in utilising free space in the ducts and conduits shall submit an order for access within one month of the time that he took delivery of the data and he shall specify, as precisely as possible, which ducts, or conduits access is requested for. Mila shall not commence work on its own deployment of optical fibres in the area in question, in which the network operator has shown interest subsequent to a request having been made that Mila provide the above specified information and until the notice of one month has passed that the network operator has, to decide whether he will use access to the ducts and conduits. During the period in question, the requested ducts or conduits in the area are therefore reserved for the interested network operator. The period in question can be shorter than 4 months, all depending on how quickly Mila delivers the necessary information on those ducts and conduits that the request concerns, to the interested network operator. After an order has been made, Mila is unauthorised to install cables or perform any work on the ducts and conduits covered by the order, that in any way would impair the network operator's requested access to those ducts and conduits.

1611. The obligation in question may however not prevent normal Mila use of its infrastructure or inhibit Mila fibre-optic rollout. If Mila has formally notified about fibre-optic rollout in the area in question, with at least 6 months' notice, the priority in question for the party requesting access does not apply. Mila needs to specify precisely which addresses are involved and the timing of the civil works. Mila is not authorised to notify about planned civil works with more than 12 months' notice in this connection. In order to prevent Mila abuse of this authorisation for priority, the PTA can, having received a submission from a party interested in requesting access, evaluate whether Mila deployment plans are realistic. The PTA can then among other things, request copies of agreements with contractors and financial plans for the civil works in question. Should Mila deem that the plans for civil works in a specific area or areas are not realistic within the 12-month period, the PTA can decide that that area or those areas, do not enjoy Mila priority for civil works.

1612. The PTA can decide on whether the network operators request for access to Mila ducts and conduits is deemed fair and normal, should a dispute arise on that issue between Mila and the network operator in question.

1613. It is clear that the above specified obligation will result in some cost and inconvenience for Mila if an electronic communications company shows an interest in such access in specific areas. The PTA points out, however, that the obligation will not apply in areas where there is more competitive pressure, and today this applies to areas where about 70% of the population reside. The PTA considers that the obligation in question will first and foremost be activated in areas where there is less competition and no fibre-optic network in place, which makes the obligation considerably less burdensome than if it had applied everywhere.

1614. Mila has provided facilities, for example in buildings, on the basis of article 25 of the Electronic Communications Act. Despite this the PTA considers it necessary to impose this obligation on Mila on the basis of paragraph 2 of article 28 of the same Act as an incentive can be created for companies not to give new parties access to their facilities. A reasonable request for co-location is considered to be a request for free space in Mila buildings and such a definition can also include a request that requires enlargement or rebuilding of the premises.

1615. Mila shall provide a list of planned civil works with six months' notice. This obligation covers both digging holes and ditches, but repairs or renewal of individual local loops is not covered by the obligation. The obligation is intended to cover overall development where no infrastructure is underground and to civil works and cable laying where infrastructure is in place and where conduits are in place and fibre-optic cable being laid and/or pulled through them to a building, and to other works related to development and rollout of fibre-optic networks. Mila is authorised to shorten the notice in the advertisement down to 3 months if the company lays additional conduits in all parts of the works in question, that another electronic communications company can use at a later date. The duty to advertise pursuant to this paragraph does not apply to an area where a fibre-optic access network is already in place and owned and operated by a party other than Mila and does not apply in those municipalities where efficient competition pertains, and they now number 17 and this list will be revised annually.

1616. A Mila advertisement on planned civil works, and cable works must be sufficiently detailed for parties who plan development and/or deployment of networks can acquaint themselves with the actual scope of the works. Among other things, the advertisement shall contain information on whether this is the installation of new infrastructure or whether existing infrastructure owned by the company is to be used, and all ditches and holes that are planned shall be specified along with information on planned connections of fibres and whether local loops will be laid to individual buildings (and then what buildings).

1617. Mila shall elaborate a documented procedure that should be followed when the company receives a request for participation in civil works. Mila shall react to all such requests and provide detailed information on the civil works at the first opportunity, such as on more precise duration of the works, estimated cost of the works, further information on use of the company's facilities, etc.

1618. The PTA believes that the duty to offer joint utilisation or co-location is reasonable and has not created significant financial burdens for Mila but rather provides the company with the opportunity to use excess capacity. In addition to this the payments for such access will provide Mila with the opportunity to receive reimbursements on its investment. Where the duty for joint utilisation or co-location requires changes or extensions then Mila shall accede to normal and reasonable requests. Mila shall accede to all fair and normal requests for co-location of the necessary equipment related to services provided through fibre-optic and copper local loops.

1619. The obligation to offer joint utilisation or co-location is imposed on Míla for the facilities the company controls, including in buildings and other facilities. The obligation covers reasonable requests but does not entail a significantly increased financial burden on Míla. Should agreement not be reached between the parties on access to joint utilisation or co-location the PTA can decide a cost related price and reasonable conditions for access.

10.7.1.6 Access to other essential facilities

1620. Companies that plan to use local access in wholesale may need more critical service items than those discussed here above. The Electronic Communications Act allows for the possibility of obliging and SMP operator to provide various related services that are necessary for the lessee to have full use of the local access. Various authorisations of this kind can be found in paragraph 2 of article 28 of the Act.

1621. With reference to item c in paragraph 2 of article 28 of the electronic Communications act, the PTA intends to maintain an obligation on Míla to provide other electronic communications companies with open access to technical interfaces, protocols and other key technologies which are necessary to ensure interoperability of services (connections with other networks).

1622. With reference to item f in paragraph 2 of article 28, the PTA intends to maintain the obligation on Míla to provide access to support systems and information necessary for local loops to be used for the purpose for which they were leased. Such access among other things, constitutes the following:

- Operational support
- A database to provide information before an order is made.
- Delivery.
- Orders.
- Maintenance.
- Fault processing.
- Invoicing.

1623. Companies that lease access to Míla networks and facilities, often need to have access to electricity for equipment that they have installed in the leased facilities. With reference to item i in paragraph 2 of article 28, the PTA plans to impose an obligation on Míla to provide lessees with access to electricity where this can be implemented, whether the lessee in question installs his own metre or not, but this can be decided to a certain extent by circumstances in each individual case.

10.7.1.7 Technical migration

1624. Those obligations that now rest on Míla for access to copper local loops shall not be discontinued even though Míla migrated the structure of its systems to the next generation networks, for example should fibre-optic cables replace copper local loops (migration), unless

agreement for the procedure of the migration has been reached and the party leasing the local loops is thus prepared to accept new types of local loop in place of the older ones when the migration takes place. Should such an agreement not be reached then Mila shall inform parties to the market of all changes to the arrangements of local loop access that are likely to alter companies' competitiveness on the market with five years' notice.²⁰² Deviation may be made from the above period of notice on receipt of advance endorsement by the PTA. If a Mila request for such an exemption is considered normal and fair, the PTA will open consultation with stakeholders. If no objections are raised and stakeholders have access to substitutable products, and do not suffer any unnecessary damage when migrating between systems, the PTA will endorse such an exemption. This obligation will not apply in the 17 municipalities where effective competition pertains in the opinion of the PTA, and this list will be updated annually. About 70% of the country's population live in the 17 municipalities, which significantly mitigates the burdensome impact of this obligation. Should Mila make changes to its systems it is important that:

- System downtime should be at a minimum for those wholesale customers operating on the relevant market segment.
- Costs resulting from the migration should not be so great as to act as an entry barrier to what results from the migration.
- An integrated process for transferring all parties should be in place with care taken to ensure non-discrimination between all parties on the market.
- The time taken for migration should be at a minimum given the type and scope of the application.
- There should be a service level agreement in force for the migration and a list of key performance indicators to ensure the efficiency of the migration procedure, unless there are indications that such is unnecessary or is not cost-effective.

10.7.1.8 Conclusion on access

1625. With the authority in article 28 of the Electronic Communications Act, the PTA intends to impose on Mila the obligation to meet normal and reasonable requests for local access to its copper and fibre-optic networks and related facilities and service at wholesale level, whether it is shared or fully unbundled access. With respect to xDSL, other than VDSL, Mila shall accede to requests from electronic communications companies for the upper frequency range of copper local loops for data transmission even though the lower frequency range is not being used for telephone service. With respect to fibre-optic local loops, Mila shall among other things, provide access to the following service offer:

- Fibre-optic local loop: One optical fibre from the location of the optical distribution frame, where Mila has the last optical splitter to the demarcation box at the end user's access address. This location is called #CPOA and is situated at a location where Mila has adequate capacity to provide P2P fibre-optic connection to end users.

²⁰² Commission recommendations of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) page 43. See further BEREC Common Position on best practices in remedies on the market for wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location imposed as a consequence of a position of significant market power in the relevant market - Page 18.

- Fibre-optic local loop on PON network: Fibre-optic from the end user to a technical facility which houses the interface between the access network and trunk line network. This is a case of a standard fibre-optic local loop with optical splitter and backhaul fibre.
- Backhaul fibre: One or more optical fibres from telephone exchange/technical facility to FDP, for example for VDSL2 equipment in a street cabinet or optical splitter.
- The PTA considers shared access to Mila, PON fibre-optic local loops unlikely during the lifetime of the analysis, because of technical difficulties with this, the PTA plans nevertheless to impose an obligation on Mila for such access, should a reasonable, fair and normal request for access be made.

1626. The PTA considers shared access to Mila, PON fibre-optic local loops unlikely during the lifetime of the analysis, because of technical difficulties with this, the PTA plans nevertheless to impose an obligation on Mila for such access, should a reasonable, fair and normal request for access be made. Should fair and normal requests for other types of local access to the Mila fibre-optic network be made, Mila shall accede to such requests if the access is technically and economically feasible. Should Mila refuse such an access request, this shall be notified to the PTA with appropriate reasons and the PTA will decide on whether the access in question shall be granted.

1627. As it is not possible to provide access to physical local loop, e.g., where VDSL service with vectoring is installed, or on a sub loop in the Mila PON network, the VULA virtual solution which can perform the same functions shall be offered. It will require endorsement by the PTA if the virtual access is offered instead of physical access. A reasonable request for full or shared access to local loop is considered to be a request for a local loop that is not in use for another purpose on that day when new use is planned. One must keep in mind that the right of each user to universal services through a network connection node and also the necessity to maintain network integrity.

1628. VULA needs to fulfil conditions related to service and access and they are: Access at each location, access independent of service provided on the line, specific and fixed definition of line capacity, full control of access and service/service definitions and full control of customer premises equipment where shared access is not technically possible, and exemption is granted where open virtual access to sub-loops is offered. where shared access is not technically possible and exemption is granted where open virtual access to sub loops is offered.

1629. Mila is only authorised to limit access to and use of local loops on the basis of fundamental demands that relate to operational security of electronic communications networks in emergencies, to the integrity of its systems and in proven instances of the operational capability of service systems and protection of data.

1630. Should the situation arise that an electronic communications company request to install a new cable in a Mila duct or conduit on the market now under discussion, which was not fully used, Mila should accede to this request, given that it was normal and fair. Should a reasonable request to this effect be made by an interested network operator, that was deemed normal and fair, then Mila should prepare a database, which contained precise information on the location and condition of the company's ducts and conduits. It should show among other things, which ducts and conduits are free in part or entirely and can thus be used for such access. The database

shall among other things, show the above specified information in map form. Mila shall give the PTA and interested electronic communications companies access to the database in question. Should older Mila ducts and conduits be in place that are no longer needed, Mila shall remove them for a reasonable charge, if this could result in interested electronic communications companies being able to use the ducts or conduits in question. If an agreement is not reached, the PTA can decide a normal recompense in this connection. Mila shall furthermore, in return for a fair charge, make necessary repairs and improvements to ducts and conduits, so that they can be used for this purpose. If an agreement is not reached between Mila and the party making the request for installing fibre in a free duct or conduit, in return for a reasonable charge, the PTA, can decide on reasonable recompense. This obligation will not apply in those municipalities that the PTA has assessed as having more competition.

1631. The above specified database shall be available no later than 3 months after the fair and reasonable request has been received from a network operator regarding such access in an area where no party has deployed fibre-optic network. Such a request shall be limited to a clearly delineated area, e.g., municipality or village/town or district at which the interest of the network operators in question is directed in each instance. In other areas where the obligation is in force, such a database shall be available no later than 12 months after a fair and normal request for its building has been made by an interested network operator with regards to a more specifically defined area.

1632. After having received the above specified map data and the above specified information on Mila ducts and conduits, the network operator who is interested in utilising free space in the ducts and conduits shall submit an order for access within one month of the time that he took delivery of the data and he shall specify, as precisely as possible, which ducts, or conduits access is requested for. Mila shall not commence work on its own deployment of optical fibres in the area in question, in which the network operator has shown interest subsequent to a request having been made that Mila provide the above specified information and until the notice of one month has passed that the network operator has, to decide whether he will use access to the ducts and conduits. During the period in question, the requested ducts or conduits in the area are therefore reserved for the interested network operator. The period in question can be shorter than 4 months, all depending on how quickly Mila delivers the necessary information on those ducts and conduits that the request concerns, to the interested network operator. After an order has been made, Mila is unauthorised to install cables or perform any work on the ducts and conduits covered by the order, that in any way would impair the network operator's requested access to those ducts and conduits.

1633. The obligation in question may however not prevent normal Mila use of its infrastructure or inhibit Mila fibre-optic rollout. If Mila has formally notified about fibre-optic rollout in the area in question, with at least 6 months' notice, the priority in question for the party requesting access does not apply. Mila needs to specify precisely which addresses are involved and the timing of the civil works. Mila is not authorised to notify about planned civil works with more than 12 months' notice in this connection. In order to prevent Mila abuse of this authorisation for priority, the PTA can, having received a submission from a party interested in requesting access, evaluate whether Mila deployment plans are realistic. The PTA can then among other things, request copies of agreements with contractors and financial plans for the civil works in question. Should Mila deem that the plans for civil works in a specific area or areas are not realistic within the 12-month period, the PTA can decide that that area or those areas, do not enjoy Mila priority for civil works.

1634. The PTA can decide on whether the network operators request for access to Mila ducts and conduits is deemed fair and normal, should a dispute arise on that issue between Mila and the network operator in question. The PTA also intends to maintain the duty on Mila to offer co-location/joint utilisation to facilities related to the service provided over copper or fibre-optic local loops. A reasonable request for co-location/joint utilisation is considered to be a request for free space in Mila buildings and such a definition can also include a request that requires enlargement or rebuild of premises. Where the duty for joint utilisation or co-location requires changes or extensions then Mila shall accede to normal and reasonable requests. The obligation to offer joint utilisation or co-location is imposed on Mila for the facilities the company controls, including in buildings and other facilities. The obligation covers reasonable requests but does not entail a significantly increased financial burden on Mila. Should agreement not be reached between the parties on access to joint utilisation or co-location the PTA can decide a cost related price and reasonable conditions for access.

1635. Mila shall authorise open access for other companies to technical interfaces, communications protocols and other technologies that ensure interoperability of services and connections with other networks. Mila shall provide access to support systems and information necessary for the local loops to be useful for the purpose for which they were leased. Such access can among other things be in the form of operational support, database to gather information prior to orders being made, delivery, orders, maintenance, handling of faults and invoicing. Mila shall furthermore provide service providers with access to electricity in technical spaces if possible.

1636. Mila shall provide a list of planned civil works with six months' notice. This obligation covers both digging holes and ditches, but repairs or renewal of individual local loops is not covered by the obligation. The obligation is intended to cover overall development where no infrastructure is underground and to civil works and cable laying where infrastructure is in place and/or fibre-optic cable being pulled through them to a building and to other works related to development and rollout of fibre-optic networks Mila is authorised to shorten the notice in the advertisement down to 3 months if the company lays additional conduits in all parts of the works in question, that another electronic communications company can use at a later date. The duty to advertise pursuant to this paragraph does not apply to an area where a fibre-optic access network is already in place and owned and operated by a party other than Mila and does not apply in those municipalities where efficient competition pertains, and they now number 17 and this list will be revised annually.

1637. A Mila advertisement on planned civil works, and cable works must be sufficiently detailed for parties who plan development and/or deployment of networks can acquaint themselves with the actual scope of the works. Among other things, the advertisement shall contain information on whether this is the installation of new infrastructure or whether existing infrastructure owned by the company is to be used, and all ditches and holes that are planned shall be specified along with information on planned connections of fibres and whether local loops will be laid to individual buildings (and then what buildings).

1638. Mila shall elaborate a documented procedure that should be followed when the company receives a request for participation in civil works. Mila shall react to all such requests and provide detailed information on the civil works at the first opportunity, such as on more precise duration of the works, estimated cost of the works, further information on use of the company's facilities, etc.

1639. Furthermore, Mila shall inform parties to the market of on all changes to the arrangements of local loop access that are likely to alter companies' competitiveness on the market with five years notice. The PTA can grant an exemption from the 5 years' notice in question. If such an exemption is considered normal and reasonable, the PTA will open consultation with stakeholders. If no objections are raised and stakeholders have access to substitutable products, and do not suffer any unnecessary damage when migrating between systems, the PTA will endorse such an exemption. This obligation will not apply in those municipalities that the PTA has assessed as having more competition.

1640. Applications sent electronically for local access and related facilities shall be processed by Mila as quickly as possible. Mila is unauthorised to give its departments and related companies priority in handling at the cost of other electronic communications companies. Denial of access shall be sent electronically and shall contain grounds for the decision. The grounds must contain all information required to enable assessment of the justification of the denial. Applications for access shall have access equal to that of companies within the Siminn Group to the Mila service system for the purpose of tracking their applications and also for information on maintenance and repair of local loops and on invoicing.

10.7.2 Obligation for non-discrimination

10.7.2.1 In general on obligations

1641. Pursuant to article 30 of the Electronic Communications Act, the PTA can impose obligations on electronic communications companies designated with significant market power to practise non-discrimination when agreeing to interconnection or access. Such obligations should particularly ensure that electronic communications companies make the same conditions to other companies that provide electronic communications services for the same kind of transactions and should provide service and information with the same conditions and the same quality as it provides to its own service department, subsidiaries or collaborators.

1642. The provision on non-discrimination in article 30 of the Electronic Communications Act is in two parts. On the one hand the PTA can impose obligations on a company with SMP for non-discrimination when agreeing to interconnection and access, that is to say practise non-discrimination between unrelated electronic communications companies. On the other hand, the obligations shall ensure that the company make the same conditions to unrelated electronic communications companies in analogous transactions as it makes to its own service providers or other related parties.

1643. In order for this to be successful, the obligation to grant access must be imposed together with an obligation for non-discrimination. The non-discrimination obligation is intended to prevent a vertically integrated undertaking with SMP from engaging in practices that have a negative impact on competition. It is intended to prevent such an undertaking from discriminating, for example with regard to price and quality of service, that is selling less expensive and better services to its own retail departments than to other parties. Fair, moderate and justifiable conditions for access, including price are basic issues when striving to strengthen competition. The obligation for non-discrimination does not mean that all companies are subject to exactly the same conditions but rather that all difference in conditions is based on objective criteria.

1644. Significant market power on the market for local access provided at a fixed location (M3a) can lead to a company discriminating against parties that require the service, should the

obligation for non-discrimination not be imposed. It could tend to sell to unrelated parties at a higher price than to its own departments and to other related parties. In order for the non-discrimination obligation to have the desired effect, it is often necessary to impose an obligation to practise separation of accountancy as well.

1645. Even though companies have been assured access to local loops at the same price as related parties, Mila can try to discriminate on other grounds and in this way increase costs for the Siminn Group competitors in order to cause them problems and even push them out of the market. Such practices could for example be in the form of varying quality of service, differing service offers between related unrelated parties, varying processing of applications, inadequate information to unrelated parties (among other things on new service and/or planned distribution networks), unreasonable conditions for agreements and demands that other unrelated service is purchased at the same time.

1646. The PTA believes that the obligation for non-discrimination is admirably suited to tackle the problems that arise in connection with discrimination with respect to price and access conditions. As an example of varying quality, one could mention variations between the Siminn Group service departments and other companies with respect to time taken to connect local loops. Discrimination can also manifest itself in varying prices and/or conditions for access to information systems and in parties being provided access to systems of varying ages and capacity.

1647. The information gained by Mila from other companies when making agreements for access, or completion of agreements, shall solely be used for the purpose provided for and shall at all stages be treated as confidential. It is unauthorised to supply information from related or unrelated parties, see among other things article 26 of the Electronic Communications Act no. 81/2003.

1648. The PTA intends to maintain the obligation on Mila to respect the non-discrimination against all electronic communications companies that purchase local access on a fixed line, regardless of whether it is a copper or fibre-optic network. All purchasers of such service shall, having taken circumstances into account, use the same conditions (including prices) that apply for related parties or those cooperating with Mila. This also applies to access to Mila ducts and conduits.

1649. The PTA also intends to add an obligation to this Siminn Group, that it withstands and ERT test with respect to Mila and Siminn, fibre-optic products.

10.7.2.2 Non-discrimination in access

1650. The PTA makes the requirements that quality of access provided to unrelated parties be no less than that of services provided by Mila to related parties. The PTA plans to maintain the Equivalence of Input (EoI) obligation on Mila. The PTA considers that this obligation is more useful for ensuring complete non-discrimination than what is called the Equivalence of Output (EoO) obligation, and in addition to this EoI has been in force vis-à-vis Mila since 2014 and therefore it should not be unnecessarily burdensome to continue to work according to that obligation.

1651. Equivalence of Input means that Mila is obliged to offer the same price, use the same service procedures/service systems, the same time limits and to publish the same information

about the service (among other things development and distribution information) to related and unrelated customers. In this way unrelated customers receive access to the same information, the same delivery and ordering service and receive the same treatment within the same time limits as related parties. The same applies to notification of faults and solutions and access for the staff of the unrelated party to Mila's information systems which are used for service to end users. Mila shall therefore continue to provide access to its customers to those systems that are used within the Siminn Group and that are necessary in connections with local access. The obligations shall also apply to access to Mila ducts and conduits in areas where such obligations are in force.

10.7.2.3 Equal access to information, impact on development of product offer and equal service time

1652. Information on local access and service related to access and to access to Mila ducts and conduits shall be equally accessible to other electronic communications companies as to related parties. Among other things information shall be provided on the length of local loops in each instance where known, that is to say distance of the end user in question from the next connection point. If a local loop is measured for some reason, published data shall be updated with the results of that measurement.

1653. The PTA considers it particularly important that Mila does not have the opportunity to discriminate in an irregular manner between related and unrelated parties with respect to innovations on the market.²⁰³ As related retail markets are in continuous development, unrelated parties need to be certain that the appropriate wholesale products are available with adequate notice in order that they can offer new, improved and less expensive retail service (for example more capacity in Internet access) at the same time as parties related to Mila. The PTA plans to maintain those obligations on Mila that unrelated parties be informed about distribution, enlargement or other developments of Mila local loop networks (and related service and significant other innovations) with the same notice as parties related to Mila. This notice shall under no circumstances be shorter than six months. Information shall among other things contain planned prices, conditions, technical specifications, scheduled distribution plans, updated position on distribution and planned connection points. Such information is particularly important with respect to migration from ADSL to VDSL and with respect to distribution of fibre-optic local loops. Related parties may thus not receive the information in question before unrelated parties. Mila shall give related and unrelated parties the opportunity to influence development of new wholesale products and planned interfaces. Mila may not refuse to develop new service at the request of an unrelated party simply because a related party has not requested such service. Such a request by an unrelated party shall however be reasonable and normal.

1654. Mila shall take care that applications from unrelated electronic communications companies for local access and related service and for access to ducts and conduits be processed in as timely manner as those of related parties. Should there be a problem in processing an application, this shall immediately be notified to the applicant in writing or in an electronic manner and reasons shall be provided for the delay. Mila is not authorised to make unreasonable demands on the applicant as a condition for processing the application.

²⁰³ Unjustified first mover advantage.

10.7.2.4 Service level agreements and quality assurance

1655. The PTA requires that Mila make service agreements with all purchasers of local access and access to ducts and conduits where among other things the quality of service shall be prescribed and issues relating to non-discrimination as itemised in the obligations that the PTA plans to impose on Mila on the relevant market. These are Service Level Agreements (SLA). Such agreements shall cover the various service issues that relate to local access and access to ducts and conduits, including orders, delivery, service access, transfer of service and repairs. The service agreements shall also among other things prescribe how mutual interference of signals will be avoided between parties on the Mila local loops. They shall furthermore prescribe efficient and economic procedures with respect to service switching at wholesale, that is to say when a Mila counterparty decides to transfer from one service to another at Mila. In order to ensure non-discrimination and transparency with respect to quality of local access and access to Mila ducts and conduits, the PTA plans to prescribe that all service level agreements shall be published on the Mila website. Such agreements can among other things be part of a reference offer. Parties can consult with the PTA on the making of such agreements and the PTA can rule on matters of contention when making these agreements. Service level agreements can vary between parties, depending on the wishes of Mila counterparties. Mila shall however respect the non-discrimination obligation and for this reason it is important that all such agreements are published.

1656. In addition to the obligation to make service level agreements the PTA intends to maintain the obligation on Mila to issue a specific declaration on quality guarantees (Service Level Guarantees (SLGs)). The SLGs shall cover the various service issues that relate to local access and access to ducts and conduits, including orders, delivery, service access, transfer of service and repairs. Such service level guarantees shall among other things prescribe specific fines which Mila must pay to its counterparties should the service level guarantee not be honoured. In this instance it could be that a specific amount is paid for each day that for example delivery or repair exceeds the time-limit prescribed by the SLG. Such provisions for fines should be objective, simple and unequivocal such that the parties should not need to resort to the PTA or to the courts for interpretation. Mila shall ensure that interested electronic communications companies be informed of the content of the service level guarantee.

10.7.2.5 Technical replicability test

1657. In order to ensure that Mila fulfils the obligation in question the PTA can perform a technical investigation as to whether unrelated parties can replicate the product offer of related parties in a sustainable manner (technical replicability). Should the PTA conclusion be such that unrelated parties cannot replicate the product offer of related parties for technical reasons, the PTA can order the Mila to change its product offer and/or offer new wholesale products such that unrelated parties can replicate the product offer of related parties with normal commercial criteria.

10.7.2.6 Economic replicability test (ERT) with respect to access to fibre-optic local loops

1658. In order that non-discrimination is respected between the Siminn Group and competitors on downstream markets, it is necessary that the Siminn Group, pricing all wholesale service and service on downstream markets, including Siminn retail, is such that there is a sufficient gap between the price at varying levels of the value chain, in order that it

is possible for competitors that purchase procurements from Mila to offer competitive prices on downstream markets in an economically advantageous manner. To ensure non-discrimination between parties in this respect, the PTA will impose an obligation on Mila and Siminn that they withstand what is called an Economic Replicability Test (ERT), which will be conducted regularly and/or as circumstances require, as will be further prescribed in a separate decision on elaboration and execution of the test.

1659. It is necessary that this obligation apply to both Mila and Siminn, as both companies must provide information in the execution of the test and if they do not pass the test, it could mean that either of them, or both of them will be obliged to change their pricing. The PTA considers there to be full authority to direct this obligation both companies, as they constitute together a single economic unit in the understanding of competition law and in this market analysis, i.e. the Siminn Group. Then there is the fact that many of the problems that have been identified on the relevant market result from vertical integration of these companies, from their joint market power and the behaviour of each of them individually or in a concerted manner.

1660. This obligation will be directed at fibre-optic local loops owned by or under long-term control of Mila and at service of the Siminn Group on downstream markets, which is provided over the local loops in question. When this obligation is applied, prices of the relevant wholesale service are not cost analysed in advance. Under certain conditions, it is considered justifiable to overlook the obligation for linking cost to price and to apply instead an ERT obligation, which generally is considered to be categorised as an obligation for non-discrimination. In Section 10.7.5.6, there is a more detailed explanation of the reasons behind the PTA decision not to apply an obligation for cost analysed prices, with respect to Mila fibre-optic local loops, as was planned in the preliminary draft, and to choose instead an obligation for the Siminn Group to withstand an ERT test.

1661. The imposition of obligations for an ERT test is part of monitoring that the obligation for non-discrimination is complied with. The obligation intends to ensure that a competitor on the market have the same possibilities as the network operator to offer service on downstream markets, including Internet service package at retail level at the price that can compete with the retail arm of the network operator. In a new EU directive on electronic communications, 2018/1972 EU there is a mention of ERT in sub paragraph 3 of paragraph 1 of article 74, which discusses price control, where it says on the other hand that an ERT test can be applied pursuant to article 70, an article that deals with the non-discrimination obligation. It appears therefore to be generally considered that an ERT test is part of non-discrimination obligation. An ERT test constitutes on the other hand a kind of monitoring of tariff and the PTA considers it therefore appropriate to refer both to article 30 of the Electronic Communications Act (non-discrimination) and to article 32 (on price control) with respect to the legal grounds of an obligation for an ERT test.

1662. The purpose of the ERT test is to monitor that there is not an abnormally small difference between the wholesale price of fibre-optic local loops and the price of the Siminn Group, for service on downstream markets, particularly Mila bitstream service and the main Siminn retail offers, such that competitors cannot emulate it. The PTA plans to commence preparations of a decision on the elaboration, adoption and execution of an ERT test at the same time as a decision on obligations subsequent to this market analysis has come into force.

1663. The PTA will consult with stakeholders on the elaboration and adoption of the test, and it is clear that the PTA will base this on the Commission recommendation 2013/466/EU and the BEREC guidelines on ERT test from 2014 when the factors that the test will take into

account are defined. The obligation to be submitted to an ERT test and to provide all necessary information will rest on Mila and Siminn, as previously stated.

1664. In the EU Commission recommendations 2013/466/EU on the application of non-discrimination and price control obligations with respect to next generation networks²⁰⁴, there is detailed discussion on the conditions for applying an ERT test instead of price control and there is a description of how such a test should be conducted. In the following paragraph there is discussion on the main emphases of the recommendations with respect to the implementation of an ERT test.

1665. In order to reveal how competitors could economically emulate the service offer of the network operator on the downstream production level, with the regulated wholesale access that was on offer, in those instances where an obligation for cost analysed prices was not in place, NRAs should perform an economic replicability test (ERT). This was with the intention of ensuring that a company with SMP did not abuse freedom in pricing to keep competitors from the market.

1666. With the test, it should be ensured that the gap between the retail price of a company with SMP and the price for NGA wholesale access was adequate to cover downstream additional costs along with a fair share in shared costs. Technical and/or Economic replicability is not considered to be in place if the retail arm of the network operator cannot operate the relevant retail service at a profit on the basis of the wholesale price that competitors are offered. This was on the premise that competitors enjoyed the same efficiency as the network operator.

1667. In the event of special circumstances pertaining on a market, such that if the entry and growth of a competitor had been unsatisfactory, the NRA could make changes to the test criteria, such that the cost of the network operator would be examined on the basis of efficiency that one might expect competitors to enjoy.

1668. NRAs should, subsequent to market analysis, define and publish in a decision, the case procedure and the criteria that it intended to apply when conducting the test. It would be possible to conduct the test before a new retail service from the network operator was put on the market, e.g., at the same time as a technical replicability test. The test would not have to be conducted for all retail services that were put on the market, but rather only for what are called “flagship” services, which were the most important retail products on the market on the basis of market share, quantity and value, that were based on access to an NGA network and that included broadband service. It could also be appropriate to conduct the test immediately subsequent to the decision that authorised free pricing of fibre-optic, or when there were changes on the market.

1669. ERT tests should be defined in advance and the definition should include a number of specific key issues in order to ensure foreseeability and transparency. An LRIC+ model should be used when examining a network operator's costs at downstream production level and the gap should be assessed between the relevant retail product and the wholesale access that would be most used or that one could assume to be most common during the period of validity of the decision. If new access services were introduced and became common, it could be necessary

²⁰⁴ COMMISSION RECOMMENDATION of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU)

to replace the access service used in the test. If there was a difference in conditions between areas, then it could be necessary to adapt the test geographically.

1670. BEREC and the Commission were jointly assigned the task of monitoring the effects of their recommendations, particularly on investments, competition and retail price, and provide NRAs with further instructions on their implementation.

1671. A decision on applying an ERT test instead of an obligation for cost analysis should contain a description of the content of the ERT test, and this description should contain as a minimum:

- (i) relevant downstream cost that should be taken into account.
- (ii) relevant cost standard.
- (iii) relevant regulated wholesale inputs are relevant reference prices.
- (iv) relevant retail products.
- (v) relevant time period.

1672. It should furthermore prescribe case procedure, including that the NRA could commence the test at its own initiative or at the request of a third party, at any time, but no later than three months after the relevant retail service came onto the market. The test should be completed as quickly as possible and no later than four months after case procedure commenced.

1673. The measures to be taken if the relevant company did not pass the ERT test should be described.

1674. BEREC published a guidance document on conducting an ERT test in 2014.²⁰⁵ In the document, one can find among other things, a more detailed elaboration of the main rules given in an appendix to the above specified commission recommendations from 2013. (2013/466/EU).

1675. In a document, one can find explanations of various aspects of the ERT test that are not fully explained in the recommendations, for example depreciation methods, reasonable profit, relationship between use by average user and price, treatment of temporary offers and discounts and geographic segmentation. There is discussion on criteria with respect to economy of scale, as NRAs need to decide the extent of economy of scale of a network operator that should be applied when downstream cost is assessed, and in this context, there are three main options:

- Equally efficient operator (EEO) – on the assumption that the network operator has the same economy of scale on a downstream market as the SMP operator, where the costs of the SMP operator is used and determined from his bookkeeping.

²⁰⁵ BEREC Guidance on the regulatory accounting approach to the economic replicability test (i.e., ex ante/sector specific margin squeeze tests) BoR (14) 190.

- Reasonably efficient operator (REO) – on the assumption that the network operator does not have the same economy of scope as the SMP operator. It is assumed that a new entry to the market will in the fullness of time achieve full economy of scale.
- Adjusted equally efficient operator (adjusted EEO) – on the basis of costs of the SMP operator where the costs are then adapted to a smaller market share.

1676. In the document, one can also find discussion on the main methods that the NRAs were already applying when conducting margin squeeze tests.

1677. If Mila and Siminn at any point in time do not pass an ERT test that has been introduced, and do not mitigate the shortfalls without delay, for example by Siminn increasing retail price or Mila reducing wholesale price, or breach the EoI obligation, one can expect that the PTA will have to make a decision on more stringent obligations, such as cost analysed prices on fibre-optic local loops.

1678. Mila is obliged to send information annually to the PTA on investments and distribution plans, with respect to NGA networks, in order for it be possible to monitor development of the investment environment and competition conditions.

1679. The implementation of monitoring and publishing of results of performance with respect to an ERT test will be further prescribed in a separate decision on the implementation of the ERT test, which will be conducted subsequent to statutory consultation procedure.

10.7.2.7 Measurement of key performance indicators and publication of results

1680. In order to ensure that Mila respects the obligation for non-discrimination that is intended to be maintained on the company for making SLG, the PTA intends to maintain the obligation on Mila that it should collect and publish regularly certain key performance indicators (KPI). This obligation shall furthermore cover access to ducts and conduits. There is discussion on the necessity for publishing such information in the BEREC document on the relevant market from December 2012²⁰⁶ and in the ERG document on obligations²⁰⁷. The key issues mentioned are in this instance delivery of orders, delivery of service, service availability, switching of service and maintenance. In this way Mila's counterparties can compare the service they receive with the service received by companies related to Mila on the one hand and with the average in the sector on the other. In this way Mila counterparties can determine whether they are being discriminated against. The publication of conclusions of measurements of key performance indicators will as shown above help in casting light on whether the non-discrimination obligation is complied with, particularly with respect to those factors related to pricing and whether Mila has fulfilled its duty to make adequate service level agreements with its counterparties.

1681. As a minimum Mila shall publish the following key performance indicators as part of key performance assessment.

- Delivery of orders.

²⁰⁶ BEREC Common Position on best practices in remedies on the market for wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location imposed as a consequence of a position of significant market power in the relevant market - Page 15-16, BoR (12) 127.

²⁰⁷ Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework.

- a. Number of orders delivered.
 - b. Proportion of orders rejected after having been accepted in the ordering system.
- Delivery of products/services.
 - a. Average delivery time.
 - b. Proportion of deliveries at or before time limit.
 - c. Precision of delivery.
- Maintenance.
 - a. Proportion of faults in equipment for which company with SMP is responsible, measured in lines per year.
 - b. Average duration of repair of fault.
 - c. Proportion of fault repairs at or before time limit.
- Service switching.
 - a. Average time for switching from one wholesale service to another.
 - b. Proportion of deliveries at or before time limit.
 - c. Precision of delivery.

1682. The PTA shall monitor whether Míla collects and regularly publishes the above specified key performance indicators for internal transactions on the one hand and external on the other. The PTA considers that the publication of key performance factors is appropriate as the means to monitor compliance with the non-discrimination obligation and with Míla's duty to make service level agreements. For this reason and on the basis of minimum criteria in the BEREC and ERG reports, the PTA intends to maintain the obligation on Míla to gather and publish on its website figures for key performance indicators at monthly intervals.

1683. The PTA understands that the obligation in question for collection of data can be onerous for Míla. On the other hand, the PTA considers that measuring these criteria is important for the market and furthermore necessary for Míla in its own operations, and furthermore that the obligation in question has been borne by Míla since 2014 and for this reason this obligation should be part of procedure within Míla. Publishing the above specified information is important for a competition on the relevant market and supports compliance with the demand for non-discrimination and that all parties can rely on this compliance.

10.7.2.8 Conclusion on non-discrimination

1684. With the authority of article 30 of the Electronic Communications Act, the PTA intends to maintain the obligation on Míla to respect the non-discrimination against all electronic communications companies that purchase local access on a fixed line, regardless of whether it is a copper or fibre-optic network. All purchasers of such service shall, having taken circumstances into account, use the same conditions (including prices) that apply for related parties or those cooperating with Míla. The obligations shall furthermore apply to access to ducts and conduits. Quality of access provided to unrelated parties shall not be less than quality of access provided by Míla to related parties. The obligation for non-discrimination that the

PTA intends to maintain on Mila is for Equivalence of Input which is where the company is obliged to offer the same price, use the same service procedures/service systems, the same time limits and publish the same information about the service to related and unrelated customers. Mila shall therefore provide access to unrelated parties those systems that are used within the Siminn Group and that are necessary in connection with local access and access to ducts and conduits.

1685. Information on local access and service related to access and to access to Mila ducts and conduits shall be equally accessible to other electronic communications companies as to related parties. Among other things information shall be provided on the length of local loops in each instance where known, that is to say distance of the end user in question from the next connection point. If a local loop is measured for some reason, published data shall be updated with the results of that measurement.

1686. The PTA plans to maintain obligation on Mila that unrelated parties be informed about distribution, enlargement or other developments of Mila local loop networks and its ducts and conduits with the same notice as parties related to Mila receive and this notice shall not be shorter than 6 months. Mila should furthermore give related and unrelated parties the opportunity to influence development of new wholesale products and planned interfaces.

1687. Mila shall take care that applications from unrelated electronic communications companies for local access and related service and for access to ducts and conduits be processed in as timely manner as those of related parties. Should there be a problem in processing an application, this shall immediately be notified to the applicant in writing or in an electronic manner and reasons shall be provided for the delay. Mila is not authorised to make unreasonable demands on the applicant as a condition for processing the application.

1688. In order to ensure that Mila fulfils the obligation in question the PTA can perform a technical investigation as to whether unrelated parties can replicate the product offer of related parties in a sustainable manner (technical replicability), and should this not be the case, the PTA can instruct Mila to change its product offer.

1689. The PTA plans to impose a new non-discrimination obligation on Mila and Siminn, which is an obligation for withstanding what is called an economic replicability test (ERT). The test will apply to fibre-optic local loops owned by or under long-term control of Mila, and services of the Siminn group on downstream markets that are based on fibre-optic local loops. The obligation is intended to ensure a normal gap between price at wholesale level and price on downstream markets and to thus enable competitors on the downstream markets in question to compete on a level playing field, such that they can in an economically efficient manner replicate the main service offer of the Siminn Group. The obligation is not fully elaborated in this analysis, but the PTA will commence work on the separate decision on elaboration and introduction of the ERT test when the decision on obligations subsequent to this analysis has come into force.

1690. The PTA plans to maintain the obligation on Mila to make Service Level Agreements (SLAs) with all purchasers of local access and to prescribe the obligation to make such agreements for access to ducts and conduits. Such agreements shall cover the various service issues that relate to non-discrimination with regards to local access and access to ducts and conduits, including orders, delivery, service access, transfer of service and repairs. All service level agreements shall be published on the Mila website.

1691. The PTA plans to maintain the obligation on Mila to issue a special declaration on Service Level Guarantees (SLGs) and to issue a declaration on SLG for access to ducts and conduits. Such SLGs shall cover all necessary service items that relate to non-discrimination with regards to local access and access to ducts and conduits, including orders, delivery, service access, transfer of service and repairs. Such service level guarantees shall among other things prescribe specific fines which Mila must pay to its counterparties should the service level guarantee not to be honoured. Mila shall inform interested electronic communications companies about the content of the service level guarantee.

1692. Furthermore, the PTA intends to maintain obligation on Mila that the company gather and regularly publish specific key performance indicators, including criteria that relate to processing of orders, delivery of service, maintenance services and service switching - for internal transactions on the one hand and external on the other. Mila shall furthermore publish such information on access to ducts and conduits. Mila shall publish the information in question on a monthly basis on his website.

1693. The information gained by Mila from other companies when making agreements for access, or completion of agreements, shall solely be used for the purpose provided for and shall at all stages be treated as confidential. It is unauthorised to supply information from related or unrelated parties, see article 26 of the Electronic Communications Act.

1694. The PTA believes that the demand for non-discrimination is both reasonable and normal. There is no indication that it creates significant costs or inconvenience for SMP operators, given the advantages that the obligation brings to competition. The PTA therefore considers it necessary to strengthen competition on the market for local access, including access to ducts and conduits, and on downstream markets, by imposing obligations on non-discrimination which cover at least the above specified aspects.

10.7.3 Obligation for transparency

1695. Pursuant to paragraph 1 of article 29 of the Electronic Communications Act, the PTA can oblige electronic communications companies with significant market power to publish specific information in order to increase transparency of interconnection or access to the facilities of an electronic communications company, for example bookkeeping information, technical information, information on the characteristics of networks, terms and conditions for delivery and on usage and on tariffs. It is authorised to make an exemption to the publication of information if an electronic communications company can show that it concerns important financial or business interests that it is fair and normal to keep confidential.

1696. In paragraph 2 of article 29 of the same Act it states that when an electronic communications company is obliged to practice non-discrimination then the PTA can demand that it publishes a reference offer that contains a breakdown description of interconnection or access, along with terms and conditions, including tariff. The PTA can prescribe amendments to the reference offer and is authorised to impose rules on the content of such offers.

1697. Transparency of terms and conditions for interconnection and access to facilities, including price, served the purpose of expediting agreement negotiations, prevents disputes and supports belief among parties to the market that there is no discrimination in provision of services. It is necessary that technical provisions that applied to local access are clear and transparent which can be particularly important in ensuring operational compatibility.

1698. A reference offer should give all parties to the market the opportunity to see which is on offer and the description of service shall be broken down into units depending on the needs of the market to ensure that companies will not be required to pay for service and facilities for which they have no need. Mila has published a reference offer for open access to local loops and VULA virtual local loops, see obligations from previous market analysis. The PTA intends to maintain an obligation on Mila for the publication of a reference offer and will add information about access to ducts and conduits. The PTA intends to commence a review of the reference offer for local access provided at a fixed location in accordance with obligations imposed in this instance and in the light of new definitions of the relevant market and new obligations that the Administration intends to impose on Mila.

1699. Mila shall upgrade the current reference offer as required²⁰⁸ for wholesale local access provided at a fixed location along with open virtual access to sub loops (VULA) and access to ducts and conduits. The reference offer shall be broken down as a minimum in accordance with the list of items here below and shall be in accordance with the discussion here above on transparency of conditions. It is important that Mila upgrade its reference offer regularly with respect to technical development and market needs having taken into account considerations of the company's related and unrelated customers. The reference offer and amendments shall be submitted to the PTA for endorsement before publication. Publication on the Mila website is deemed adequate.

1700. In the updated reference offer, Mila shall among other things publish work procedures that describe how the company handles requests for access to new service on existing networks, including requests for access to ducts and conduits. New service among other things refers to increased speed and shorter maintenance time than has been the practice to date. The work procedures shall among other things specify how such requests shall be made and in what form, information that is necessary for Mila to assess whether it is feasible to provide the new access and the time window for processing such a request. The main rule is that Mila must process such requests as rapidly as possible. Should Mila reject the new access then the company must justify this in writing. Such a rejection can be referred to the PTA.

1701. With respect to minimum content of a reference offer, the PTA refers to the BEREC guidelines on this issue, which was published in 2019²⁰⁹, and the description that the current reference offer should be based on, see PTA Decision no. 21/2014.

1702. At least the following items shall be specified in the Mila reference offer:

1) Terms and conditions for providing access:

- Description of the network access and virtual access being offered including technical characteristics (which shall contain necessary information on configuration in network equipment to enable the most effective network access); Furthermore, a description of access to ducts and conduits.
- Appropriate technical standards for network access (for example for all limitations of use and other security items).
- Appropriate technical description of frequency arrangements and the strength of signals in accordance with international standards.

²⁰⁸ "Reference offer for wholesale access to local loops" with appendices, dated 9 August 2016.

²⁰⁹ BEREC GUIDELINES on the minimum criteria for a reference offer, BoR (19) 238, 5 December 2019

- Location where network access and access to ducts and conduits is provided.
 - Work procedures and conditions that are used for the purpose of gathering necessary data for providing wholesale service on the relevant market.
 - Terms, conditions, descriptions and work processes as regards core location and sharing and access to ducts and conduits.
 - Conditions for access to minor, additional and more complex service (including support systems for operations, IT systems or databases for preliminary orders, stocks, order, maintenance and repair requests and invoicing), including limitation of use and work procedures to gain access to the service.
 - Charging, terms of payment and procedures with invoicing.
- 2) Exact description of procedural rules, for example with respect to:
- Pre-order, order and delivery of service.
 - Migration from older type of service or network, relocation and end of contract.
 - Rules for dividing space between parties where such is limited (for example for co-location or location of electronic communications masts).
 - Repairs and maintenance.
 - Changes to IT systems (to the extent that they impact on other service providers).
 - Description of tests that relate to interoperability between systems.
 - Technical characteristics of equipment to be used in the network system.
- 3) Provisions on service level and quality.
- Guarantee of service level (SLA) for order, delivery, supply and uptime service and repairs, including specific timeframe for acceptance or rejection of request for delivery and for completion, testing and delivery of service and facilities for the provision of support services (such as the treatment of faults/defects and repairs).
 - Quality standards that each party needs to fulfil to meet contractual provisions, including definition of key performance indicators (KPI) with regards to guarantee of service level where appropriate.
 - Guarantees with respect to service level (SLG) for order, delivery, supply and uptime service and repairs, including amounts of compensation one party pays the other in the event of failure to fulfil contractual and conditions for possible liability for compensation.
 - Work procedures where a change of service offer is proposed, including notifications of changes to the PTA, for example if a new service is to be established, or alterations to be made to existing service or tariff.
- 4) General terms and conditions
- All general terms and conditions for providing network access and access to ducts and conduits (such as with respect to duty to inform, non-disclosure, payment of insurance, transfer of rights, force majeure, discrepancies, parties' representatives and jurisdiction).
 - Procedure for resolution of disputes which the parties in question shall apply.

- Description of term and review provisions of agreements.
- Definition and limitation of liability and compensation.
- Definitions of concepts that apply to wholesale access and to other related issues.

10.7.3.1 Conclusion on transparency

1703. With article 29 of the Electronic Communications Act in mind the PTA plans to maintain the obligation on Mila for transparency when providing local access to copper and fibre-optic and open virtual access (VULA) where appropriate. Mila shall furthermore respect transparency with regards to access to ducts and conduits. Mila was obliged to publish information related to local access and access to ducts and conduits local loops, for example on registering its ducts and conduits, technical descriptions, characteristics of networks, terms and conditions for delivery and usage and tariff. Part of this obligation was that Mila was to issue a reference offer for local access, to related facilities and access to ducts and conduits which was to be maintained and updated as required and submitted to the PTA for scrutiny and endorsement.

10.7.4 Obligation for separation of accountancy

1704. Pursuant to article 31 of the Electronic Communications Act no. 81/2003 the PTA can impose obligations on an electronic communications company with significant market power for separation of accountancy between operations that relate to interconnection or access and other operations in such a manner that it will be possible to allocate all revenue and costs to operational units that can be connected to differing services. In addition to this the Administration can demand of a company that operates both an electronic communications network and electronic communications services that its wholesale prices and prices within the company are transparent, among other things to prevent unjustified subsidies. The PTA can decide which bookkeeping methods are to be used. To ensure transparency and non-discrimination the PTA can demand bookkeeping information, including information on income from third parties.

1705. In Regulation no. 564/2011 on bookkeeping and cost analysis in the operations of electronic communications companies, there is an explanation of the purpose of separation of accountancy and instructions on how it should be implemented. The purpose is among other things to make it possible to see income, costs and sunk capital for varying operational units and to be able to show that the same conditions apply to services provided to other companies and to services supplied to other departments of the electronic communications company in question.

1706. It is the view of the PTS that it is necessary to maintain the obligation on Mila for separation of accountancy on the relevant market, among other things to ensure non-discrimination and transparency and to enable light to be shed on real costs where appropriate. This applies both to the market for Mila copper and fibre-optic local loops.

1707. The purpose of separation of accountancy is among other things to be able to identify information from bookkeeping to show as exactly as possible the results from various parts of operations as though from separate companies. Separation of costs also limits of Mila's possibilities to charge for costs that are not related to a specific service. It is important that the operation of the access network is separated to be able to assess its performance with respect

to whether pricing of the wholesale service harmonises with cost, whether cross subsidies are taking place between different services and to ensure that all parties are treated equally with respect to price and other conditions. Separation is a prerequisite for being able to determine costs for local access.

1708. With respect to implementation of separation of accountancy it says in Chapter II of Regulation no. 564/2011 that electronic communications companies shall record their bookkeeping in such a manner that it is possible to allocate all revenue and costs to operational units which can then be linked to various services. Electronic communications companies that operate general electronic communications networks shall separate costs in networks such that it will be possible to equally distribute network costs to varying services, including access to networks. This shall apply equally to access by service departments of the company and by other electronic communications companies to the network. The cost of operating networks and/or services shall be distributed to operational units in with activity-based accounting pursuant to article 7 of the previously referenced regulation and to more detailed rules set by the PTA.

1709. With the authority in article 31 of the Electronic Communications Act the PTA maintains obligations on Mila for separation of accountancy. Such separation constitutes as a minimum that the operation of the access network belongs to Market 3 a is separated in the accounts from other operations. The Mila wholesale prices and internal prices within the company shall be transparent, among other things to prevent unjustified subsidies. In its bookkeeping Mila shall separate revenue, costs, assets and liabilities for access to local loops and for its local loops service, along with access to facilities, ducts and conduits.

1710. Mila is obliged to provide the PTA on an annual basis with a breakdown of the operational accounts and balance sheet for local access, which shows a division between copper local loops on the one hand and the fibre-optic on the other, along with a statement of the division of indirect costs that were not possible to assign through comparison with other cost items. Mila is furthermore obliged to provide the PTA with itemised operational accounts and balance sheet for access and hosting and for access to ducts and conduits.

1711. Pursuant to article 25 of Regulation no. 564/2011 Mila shall send the PTA the company's annual financial statements along with an itemised profit and loss account for the company's service components that relate to obligations for separation of accountancy. The accounts shall contain the following:

- The endorsement of a chartered accountant.
- The board's report.
- Separated profit and loss accounts.
- Settlement and reconciliation of internal sales.
- Reconciliation against the company's annual financial statements.

1712. Pursuant to article 24 of Regulation no. 564/2011 Mila shall annually prepare a report on bookkeeping arrangements. The report shall contain among other things the following:

- Accountancy rules.
- Rules for the division of costs and revenue.

- Rules on internal trading.
- Description of calculation methodology.
- Information on sizes and quantity figures, other than financial.
- A list of products, services, activities and network components.
- Rules on assessment of assets and depreciation.

1713. With reference to the above, Míla shall furthermore provide the Administration with the following information and data on the operation and balance sheet for the company's bitstream services for the year 2021 and then annually while the obligation for separation of accountancy is in force on the company. Separation between copper and fibre-optic local loops.

- Separate profit and loss account for Siminn's bitstream services along with a statement of the division of indirect costs. The consolidated profit and loss statement for operational divisions shall reconcile with the base on which the cost analysis is grounded.
- The minimum itemisation in the profit and loss account shall be the following:
Breakdown of revenue and expenditure, on the one hand according to the general ledger accounts of the company's financial accounts and on the other hand a breakdown in the same manner as the Míla financial accounts system does for individual sub-accounts. There shall be a particularly clear breakdown that distinguishes between wholesale and retail and also shows internal transactions for each operational unit, both revenue and expenditure. Wholesale revenue shall be broken down to each individual service.
- A statement showing a breakdown for the services belonging to the relevant market and quantity figures, such as number of local loops in the relevant service.
- The company's depreciation list for the year in question showing a breakdown of all booked assets attributable to Míla local loop lease.

1714. The operations and balance sheet of the company's local loop lease services shall be clearly separated from other related wholesale services, such as Internet service, distribution of television material end user equipment. An itemised statement of related services shall be included with a statement of the company's local loop lease service with an analogous breakdown of individual revenue and cost items.

1715. The above specified statement should have reached the Administration no later than five months after the end of the financial year. Should Míla and Siminn accounting separation not be satisfactory, the PTA reserves the right to submit demands at a later date for further separation of accountancy. Among other things, it could transpire that specific obligations may be defined that relate to Siminn separation of accountancy with respect to the ERT test and its implementation.

1716. Míla shall furthermore deliver a report from an independent auditor to the PTA to show that there is correspondence between the Míla description to the PTA on how costs had been divided and the implementation of accounting separation by Míla.

1717. In the report the following shall be shown as a minimum:

- The conclusions of the party that conducted the audit.
- Statement of all instances of inconsistency.
- Proposals by the party conducting the audit for remedies, and their impact.
- Detailed description of how the audit was performed.
- Consolidated financial and bookkeeping information (for example an opinion with respect to the distribution of common costs and changes to assessment of assets to value in use).

1718. Specific obligations may be defined that relate to Siminn cost Separation of accountancy., in connection with the decision on the ERT test and its implementation.

1719. The PTA considers that the requirement for separation of accountancy on Mila and Siminn is both normal and reasonable given the situation on the relevant market and the competition problems that have to be dealt with, as described in Section 10.2.

10.7.5 Obligation for price control

10.7.5.1 General

1720. In article 32 of the Electronic Communications Act no. 81/2003, it states that when market analysis indicates that lack of active competition leads to a company with SMP demanding excessively high fees or where there is an abnormally small difference in wholesale and retail prices, the PTA may impose obligations on an electronic communications company for a cost related tariff and obligations for cost accounting for certain types of interconnections or access. Investment by electronic communications companies shall be taken into account and reasonable dividends from sunk capital, while also taking into account the risk of the investment. When an obligation for a cost related price tariff with reasonable dividends is imposed on an electronic communications company, the burden of proof rests on the company.

1721. In the same provision it states furthermore that the PTA can require that an electronic communications company make a cost model for the calculation of prices. When calculating costs, the PTA can use as a reference the operation of analogous service that is considered efficiently run and can also take into account tariffs in analogous competition markets and it may use cost analysis methodologies that are not related to methodologies employed by an electronic communications company.

1722. As was stated in the discussion on competition problems, the PTA considers that Mila could have opportunity and incentive to demand excessively high prices if there is no price control on the company's tariff. If Mila on the other hand, demanded prices that are too low on the relevant market for a short or mid-term period of time, with the intention of making it difficult for competitors, or even impossible in competition, there would be a serious risk that these prices would rise again if the competitors in question were significantly weakened or disappeared entirely, if there were no obligations on price control in place.

1723. It is the conclusion of the above specified market analysis for wholesale local access provided at a fixed location that competition is not sufficiently active, and that Mila has SMP on the relevant market. Taking into account paragraph 1 of article 18 of the Electronic Communications Act, the conclusion indicates that Mila and Síminn can hinder competition and can behave to an appreciable extent independently of competitors, customers and

consumers. Mila thus has the possibility of maintaining abnormally high or low prices and/or of exerting margin squeeze. Prices that are low in the short or mid-term can easily lead to higher prices later, as previously stated.

1724. Price is in many instances the main cause of competition problems and one must therefore consider that an obligation for price control is the most effective method to deal with such problems, along with a strong non-discrimination obligation. In the opinion of PTA, obligations concerning transparency and non-discrimination alone are not sufficient to solve competition problems such as cross-subsidy, price discrimination and excessive pricing. The PTA is of the opinion that an obligation concerning price control is necessary to establish competition on the relevant market and to strengthen competition on the downstream wholesale Market 3b, and at retail level. The PTA considers it necessary to facilitate the entry of independent service providers to the relevant market and to ensure that electronic communication companies already operating there can compete with the Siminn Group on normal competitive grounds on the relevant market, downstream wholesale Market 3b and related retail markets. In order to ensure that the price for access is fair and normal and cost-based, the PTA considers it necessary to impose an obligation for price control on Mila on this market in the form of cost related tariff, both with respect to copper local loops and related facilities, as was argued in Section 10.2 and 10.4. On the other hand, the PTA believes it appropriate to allow it to suffice to impose an obligation for an economic replicability test with respect to Mila fibre-optic local loops, see further in Sections 10.7.2.5 here above and 10.7.5.6 here below.

1725. In the sections here below, there is further discussion on the price control obligations that the PTA intends to impose on Mila on this market.

10.7.5.2 Selection of methods when deciding wholesale price

1726. There are various possible methodologies for control and for a decision on price for access. According to article 32 of the Electronic Communications Act the PTA can demand that an electronic communications company make a cost model for the calculation of prices. As stated previously the PTA can take into account the operations of analogous service that is considered to be efficiently operated and can take into account tariffs in analogous competition markets and it may use cost analysis methodologies that are not related to methodologies employed by an electronic communications company. When choosing the methodology, the PTA considers it proper to emphasise that the methodology can provide a conclusion that is normal and reasonable in both directions and can provide pricing that is not greatly in excess of real costs while at the same time assuring a normal return on investment.

1727. The main methodologies applied when deciding wholesale prices are the following:

- *Cost orientation*

The prices of services are based on historical costs of the company in question (HCA)²¹⁰ or on assessed costs of an efficient network operator on the relevant market. Two methods have generally been used for cost analysis on the electronic communications market, that is to say based on the relevant company's bookkeeping where costs are allocated to the relevant service (FAC)²¹¹ or on the analysis of long

²¹⁰ Historical Cost Accounting.

²¹¹ All costs are allocated to the appropriate operations and services (Fully Allocated Costs: FAC).

run incremental costs (LRIC)²¹² on the basis of costs incurred in and efficiently operated electronic communications network (bottom-up model)²¹³.

- *Benchmarking*
Prices on comparable competitive markets are compared and the price is decided on the basis of this comparison. Prices related to a specific sample of the comparison group.
- *Retail minus*
The retail minus methodology is used to find the wholesale price by subtracting a specific proportion from the retail price. The difference subtracted from the retail price is for the costs that would otherwise have been borne by the company at retail level.
- *Price cap*
The NRA decides the price cap for specific service that applies for a specific period of time. The price ceiling can change according to indexation and possibly in line with requirement for economies. The price ceiling can be decided initially on the basis of cost according to calculations in the cost model or in another manner.

1728. When choosing the best methodology for deciding pricing for access, it is important to keep in mind on the one hand that the methodology is efficient and not too onerous and on the other hand to create acceptable conditions for companies that may request wholesale access on the relevant market. One must furthermore ensure that competitors of the Siminn Group, that operate on the relevant market, the downstream also Market 3b and related retail markets, can compete with the Group in a normal competitive environment.

1729. It can be assumed that cost analysis is an onerous obligation that should only be imposed if other methods are unsuccessful. In cost analysis, price is found based on cost information from a cost model and/or bookkeeping. To allocate costs to specific aspects of operations and services is a complicated and difficult task that can be carried out in various ways. The PTA can employ the BU-LRIC method for cost analysis in accordance with Regulation 564/2011 on bookkeeping and cost analysis in the operations of the electronic communications companies, which is a recognised methodology, among others, by the European Commission and by ESA. The methodology ensures transparency, and the regulators are not dependent on information from the bookkeeping of an electronic communications company.

1730. In the EU Commission recommendation dated 11 September 2013 on the implementation of harmonised non-discrimination obligations and cost analysis methodologies in order to increase competition and strengthen investments in the next generation of access networks (NGA)²¹⁴ there is discussion on selecting a methodology to decide access prices that is conducive to supporting rollout of next generation networks.

²¹² Long-run incremental cost is the cost that is added or is saved when a specific service or operation is added or discontinued, on the assumption that all costs are variable.

²¹³ One speaks of a "bottom-up" LRIC model (BU-LRIC) in the case of a cost model for calculating the price of service on the basis of costs incurred in an efficiently designed electronic communications network in the relevant electronic communications market.

²¹⁴ Commission recommendations of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment. Adopted in the EEA agreement with decision 59/2015 of the joint EEA committee on 20 March 2015, see item 26 and in Appendix XI as it was amended with protocol 1.

1731. As NRAs have decided to link the price for wholesale access to copper and next generation access networks to costs, according to the recommendations, when choosing the methodology to decide the access price, one shall, among other things take into account the following objectives:²¹⁵

- The costing methodology needs to lead to access prices that replicate as much as possible pricing on an effective competition market. The methodology shall be based on a modern efficient network, reflect the need for stable and predictable wholesale copper access price, support investment and act as an anchor for next generation services. The methodology shall deal with the impact of declining number of connections in an appropriate and consistent manner.
- The methodology needs to ensure that costs of an efficiently operated electronic communications company are recovered with an appropriate return on invested capital.
- The methodology shall support the assurance of efficient entry to electronic communications networks and shall ensure the provision of the appropriate build or buy signal for efficient investments, particularly in the next generation of access networks (NGA).
- The costing methodology must ensure transparency and consistency within the European Union.

1732. In the opinion of the Commission the BU-LRIC+ costing methodology best meets the objectives that must be taken into account when price for wholesale access is decided. The Commission examined conclusions from BU-LRIC+ models and estimates that the conclusions from such models will provide prices for fully unbundled access to the copper local loop in the European Union within a specific price range. The objective is that the regulatory authorities that do not use the recommended cost model will endeavour to keep the price for fully unbundled access to the local Copper local loops within this price range.

1733. According to article 42 of the recommendations, regulatory authorities are authorised continue using the costing methodology that when the recommendations came into force, that returned a price for bundled access to the copper local loop was within the price range specified in article 41 of the recommendations. The specified price range was €8-10 per month at the price level 2012.

10.7.5.3 Copper local loops

1734. With the authority in article 32 of the Electronic Communications Act the PTA intends to maintain the obligation on Mila for price control for wholesale access the company's copper access networks provided at a fixed location and related facilities. Mila shall submit a wholesale tariff for access to its copper local loops and related facilities. The company's tariff for access to copper local loops and other related service on this market shall take into account the cost of the service.

1735. One could say that the Mila street cabinet rollout is mostly completed, and one cannot expect further investment in VDSL rollout to any significant degree. As is stated in Section

²¹⁵ See further the specification in items 25-28 in the introduction to the recommendations.

3.1.3 here above, the status at the end of 2019 was that 95.8-98.6%²¹⁶ of households in the country had access to high-speed Internet service (30 Mb/s or more), which is the criterion for next generation networks.

1736. It is stated in the above specified recommendations on imposition of harmonised non-discrimination obligations and costing methodologies that they are for the purpose of supporting efficient investment and innovation in new and improved infrastructure, and in addition to this to recognise the necessity for maintaining efficient competition which is an important incentive for investment in the long-term. It is proposed to apply less stringent obligations, where applicable, to support investment in next generation networks.

1737. As the Mila VDSL rollout is completed, there is no reason, in the opinion of the PTA, to apply less stringent obligations with the objective of encouraging further investment in the Mila VDSL system. Mila has already announced that the company intends not to embark on further investments in that area, except necessary maintenance investment. As was stated here above, the copper network is still the only local loop network with close to national coverage, and it is thus very important for electronic communications companies to have economic access to that network.

1738. In addition to this, the Mila copper local loop network is furthermore important for the Siminn Group competitors on the relevant market, on the downstream wholesale Market 3b and related retail markets. If the prices for the Mila copper local loop network are too low in the short or medium term, then this could distort the competitive position of independent, fibre-optic network players. If the prices for such corporate connections are too high, in comparison with the Siminn retail price, this can make it difficult for Siminn competitors on related retail markets.

1739. The PTA considers it therefore necessary to maintain price control on copper local loops.

10.7.5.4 Cost analysis for copper local loops

1740. Pursuant of article 32 of the Electronic Communications Act, the tariffs for the relevant access to the Mila copper local loops, fibre-optic lines in street cabinets, fibre-optic lines in access network (backhaul fibre local loops) and virtual network access to copper local loops and access to related facilities shall be cost-oriented.

1741. Pursuant to paragraph 4 of article 32, the PTA is authorised, when calculating costs, to take into account comparable service considered to be operated in an efficient manner. Furthermore, the PTA is authorised to make benchmarking on the basis of cost analysis of tariffs in comparable competition markets such as in the EEA.

1742. As stated here above, the EU recommendations recommends imposition of obligations for non-discrimination and price control from 2013 and the use of the BU-LRIC+ model to decide price for access to copper and next generation networks where an obligation is imposed to base prices on costs. The PTA considers that because of the high cost of implementing the BU-LRIC+ cost model and the long preparation time, it is not appropriate at this point in time to adopt such a methodology on this market in this country. This could entail unnecessarily high costs for the PTA and for the relevant electronic communications companies. The Administration is very small in a European context and for this reason its budget is much more

²¹⁶ Because of varying definitions of households in datasets, there is uncertainty about the precise number.

limited than is normally the case. Experience in the EEA had shown that the cost in making a BU-LRIC model was in the order of ISK tens of millions for each model and for each update. It was not considered right at this stage to make this requirement as the increase in cost would in all likelihood be eventually borne by consumers in the form of higher rates. The PTA therefore has therefore sought another more efficient manner to achieve the objective of having tariffs that reflect the operations of an efficiently operated electronic communications network on the relevant market. The PTA considers it appropriate therefore to build on the work that has already been done in recent years in cost analysis in order to minimise costs and time spent in reaching a Decision on new cost-oriented access prices for the coming years. The PTA therefore intends to build on historical costs when deciding Mila access prices on the company's local loop network.

1743. When implementing its cost analysis Mila shall base its methodology on Chapter IV of Regulation no. 564/2011 on bookkeeping and cost analysis in the operations of electronic communications companies, such as on evaluation of operational assets, useful life and ROI requirement. The PTA is authorised to reject costs that the Administration considers having resulted from inefficient operations, see among other things article 32 of the Electronic Communications Act No. 81/2003.

1744. Mila cost analysis for access to copper local loops, backhaul fibre local loops (fibre-optic lines in street cabinets) and access to related facilities shall be based on the following main criteria:

- The cost base shall be Mila historical costs (HCA) based on the preceding financial year of the relevant company each instance.
- The methodology shall be based on allocating all costs to the service in question (FAC).
- Allocation of costs is based on separation of accountancy for local loop leasing, on Mila asset bookkeeping and on costs from Mila's bookkeeping system where opex is booked in bookkeeping accounts.
- Assessment of investment shall be based on the book value of operational equipment in Mila's asset bookkeeping where the historical cost of investments is adjusted to price levels of the year being analysed in each instance.
- A depreciation methodology shall be used that reflects the value in use of an asset.
- The annuity method shall be used to calculate annual investment costs.
- When calculating unit prices, the average number for the year being analysed shall be used in each instance.
- The cost of the local loop network shall be captured, including share of joint costs, management, IT and senior management in accordance with separation of accountancy.
- The required rate of return used shall be based on weighted average cost of capital²¹⁷ (WACC real)²¹⁸ from capital tied in assets used in connection with provision of

²¹⁷ In accordance with article 16 of Regulation no. 564/2011 the PTA decides on an annual basis the weighted average cost of capital (WACC) which electronic communications companies should use as a reference in their calculations.

²¹⁸ The PTA will take the EU guidelines into account (The WACC Notice) when calculating WACC.

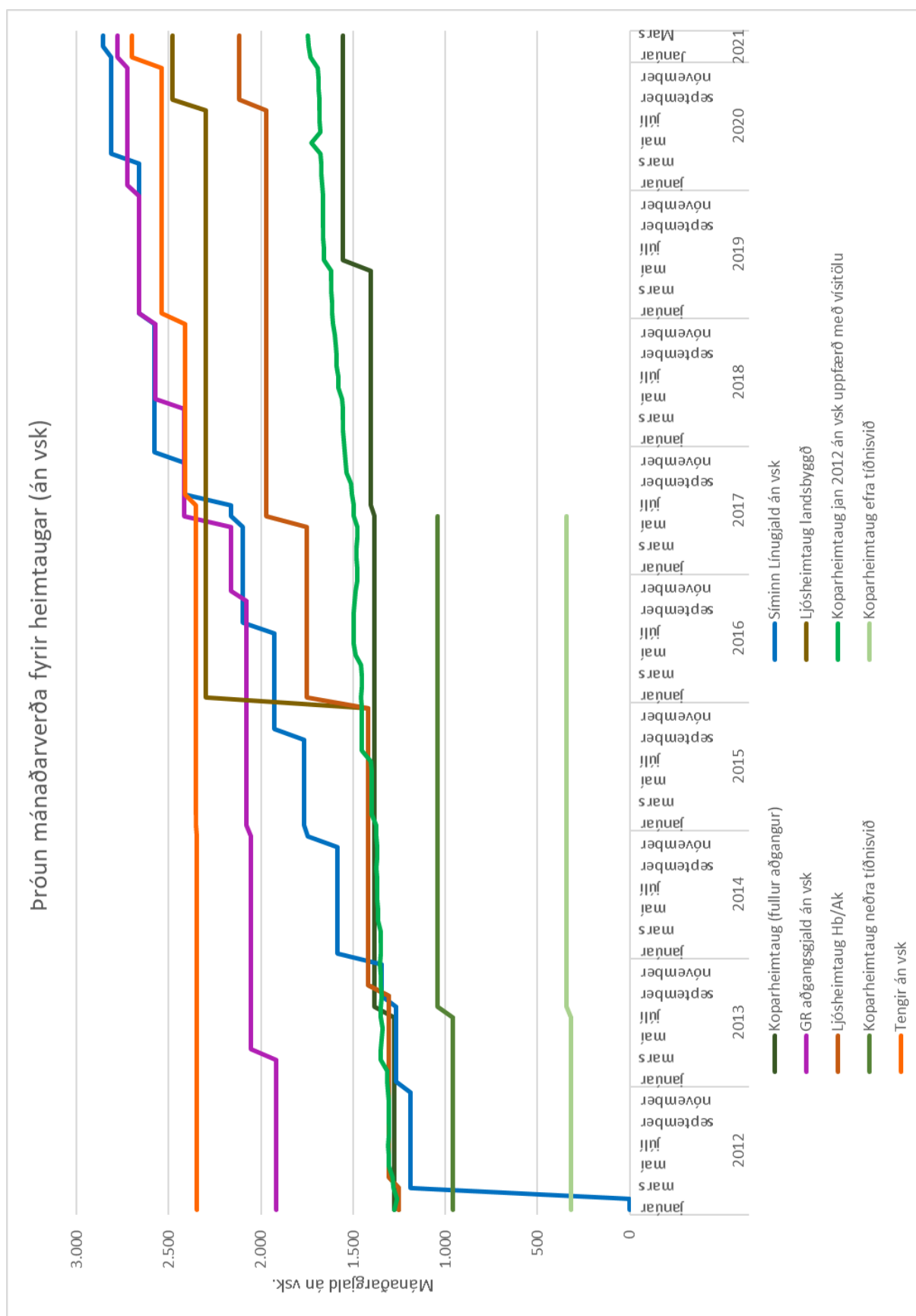
service where the risk premium reflects the risk related to operations on the relevant market.

- Funds tied in current assets to the amount of average inventory for operations and development of the access network shall be taken into account.
- Average unit cost for the whole country is calculated from allocated operational and investment costs divided by number of lines or their line equivalents.

1745. When deciding its tariff, Mila shall apply the above specified main criteria in its cost analysis for fibre-optic and copper local loops and shall submit to the PTA for scrutiny and endorsement.

1746. The following figure shows the development of access prices for copper local loop from 2012 and other local loop prices.

Figure 10.1 Development of monthly prices for local loops (in ISK/month ex VAT)



1747. As can be seen in the figure, the increase in monthly prices for Mila copper local loops, endorsed by the PTA, has been below price levels and has not followed development of prices for fibre-optic local loops. In the opinion of the PTA, a monthly price of copper local loops that is too low could be conducive to decelerating the uptake of fibre-optic local loops and it is thus no less important for this to be monitored than to prevent excessive pricing. For these reasons, the PTA intends to discontinue the procedure that was used in the PTA Decision no. 5/2017 and 8/2019 of including an investment projection in the investment base. The PTA considers that this method creates too much leeway for Mila to decide price independent of underlying costs, either for an increase or decrease in unit prices. This was done initially to mitigate the impact of the decreasing number of leased copper local loops with consumer interests as a guiding light. Because of an increase in access prices for retail local loop sales seen in the figure here above, no access prices for copper local loops in wholesale are however not passed on to consumers. In the opinion of the PTA this approach can lead to the price of copper local loops being too low in comparison with other local loops. In addition to this one must take into account that a local loop price that is too low, given Mila costs, can create a precedent for an allocation from the universal services fund in the future. It would be better if Mila was able to collect its costs with local loop charges from those who use the service than to apply for an allocation from the universal services fund, as the situation is today, which is funded by electronic communications companies.

1748. The PTA intends to decrease the frequency of reviews of tariff as was prescribed in the last market analysis. The time it takes to conduct a market analysis varies and for this reason it was not always possible to follow the timeframe that was set up. In order to increase predictability and stability in local loop prices and to lessen the workload on the Administration and on Mila, the PTA intends therefore to decrease the number of overall reviews of Mila tariff for local loops. Instead, the PTA intends to have the tariffs updated annually (1 January each year) using index development less the annual efficiency requirement between those times when the tariff is reviewed with new financial information. The PTA considers it appropriate to use the building index in this connection. The tariff shall, all things being equal, be reviewed at 2–3-year intervals and with each decision on new wholesale prices, a period of notice shall be decided for Mila to submit a new cost analysis. When reviewing a tariff, a new annual efficiency requirement shall be decided at the same time.

1749. Such an annual indexed review, having taken into account the efficiency requirement shall take place and shall be in force until the reviewed tariff is available and has been endorsed by the PTA.

1750. The PTA has requested the cost analysis from Mila for access to copper local loops Mila has notice until 1 June 2021 to deliver that cost analysis. This analysis will be based on the PTA Decision no. 21/2014, but the PTA will decide in the processing of that analysis a period of notice until the next cost analysis and the efficiency requirement shall be applied in the annual provision of Mila tariff. The annual revision described here above, will not commence until after the coming into force of the decision on a new Mila tariff on the basis of the expected cost analysis.

1751. A new wholesale tariff for copper local loops (with the exception of indexed increases, less efficiency requirements) does not come into force prior to endorsement by the PTA, subsequent to national consultation and consultation with ESA in each instance.

1752. With the PTA Decision no. 5/2017, the arrangement of paying varying prices for access to copper local loop depending on how the local loop is used and whether one was leasing the

upper or lower frequency of the local loop, was discontinued. The main objective with the change was to simplify the tariff and to make local loop charges more transparent in accordance with comments received from stakeholders.

1753. The current monthly lease for access to copper local loops is as follows:

The Mila tariff for access to copper local loops²¹⁹

Lease of copper local loop	ISK 1558/month
Access to distribution frame (100-line connection heads)	ISK 1223/month.
Start-up charge copper local loop	ISK 3166

If a POTS telephone is used on the local loop, then that service provider pays, otherwise the one which has xDSL.

1754. The above specified charge for leasing local copper local loop is irrespective of whether access is in a telephone exchange or street cabinet. On the other hand, this change does not affect the access that Mila is obliged to provide to the local loop, and which is described in Section 10.7.1 here above.

1755. For access to street cabinets Mila shall also prepare a tariff for fibre-optic lines from the telephone exchange to the street cabinet on the one hand and between street cabinets on the other. This is a tariff for optical fibres that are used for bitstream services with the VDSL technology.

Mila tariff for access to fibre-optic in street cabinet²²⁰

Ljósliña to street cabinet, 1 fibre	ISK 6880/month
Fibre-optic to street cabinet, 2 fibres	ISK 9840/month
Fibre-optic to street cabinet, 3 fibres	ISK 12,793/month
Fibre-optic to street cabinet, 4 fibres	ISK 15,745/month

1756. As the PTA has granted an exemption from the Mila obligation for access to sub-loops, Mila shall offer virtual network access (VULA) to copper local loops.

Mila tariff for VULA access²²¹

Start-up charge local loop	ISK 4,200,000
VULA access charge, per month	ISK 70,000
VULA monthly charge, per connection	ISK 79

10.7.5.5 Cost analysis for lease of facilities and related service

1757. In accordance with article 32 of the Electronic Communications Act, the tariff for lease of facilities, such as in telephone exchanges and technical spaces, and related service shall be cost-oriented.

1758. The PTA is authorised, when calculating costs, to take into account comparable service considered to be operated in an efficient manner. Furthermore, the PTA is authorised to make

²¹⁹ See PTA Decision no. 8/2019, dated 16 April 2019.

²²¹ See PTA Decision no. 6/2017, dated 30 May 2017.

benchmarking on the basis of cost analysis of tariffs in comparable competition markets such as in the EEA.

1759. The Mila cost analysis for lease of facilities shall be based on the following main criteria:

- The cost analysis shall cover the leasing of facilities in Mila buildings and masts.
- Price shall be reached for location-based access to buildings and masts. Mila shall divide investments in buildings masts into categories depending on whether the investments belong to urban areas, rural areas or uninhabited areas.
- In addition to the above the Mila tariff shall contain as a minimum the price for varying lease units and shall cover all hosting services provided today to its own service departments or to other related parties or parties cooperating with Mila and to other electronic communications companies. Leasing on masts was divided into categories where each category was based on a specific size in square metres and position on the mast.
- The cost base shall be Mila historic costs (HCA) based on the preceding financial year in each instance.
- The methodology shall be based on allocating all costs to the service in question (FAC).
- Allocation of costs are based on separation of accountancy, on Mila asset bookkeeping and on costs from the company's bookkeeping system where opex are entered by bookkeeping account.
- The opex of the hosting service shall be captured, including the share in indirect costs, i.e., management and IT, in accordance with separation of accountancy.
- When calculating investments, CAPEX shall be based on the GRC of operational assets where the book value of assets is taken into account in each instance.
- Evaluation of operational assets shall reflect the value in use of assets. The criteria shall be that timber buildings have a 30-year lifetime, concrete buildings have a 50-year lifetime, building surveillance systems have a 6.67-year lifetime, ventilation systems have a 15-year lifetime, refrigeration equipment has a 10-year lifetime and diesel engines have a 13–25-year lifetime.
- The tilted annuity depreciation method shall be used to calculate annual costs for operational assets.
- The cost of the total number of hosting in buildings and masts shall be calculated.
- The real rate of return shall be used, based on WACC real²²² from capital tied in assets used in connection with providing service where the risk premium reflects the risk related to operations on the relevant market.
- The average unit price for individual hosting units in lease of facilities shall be calculated as the average cost for specific regions on the basis of allocated opex and capex having taken into account varying services, the number of lease units and their size. It is authorised to use equivalents to decide unit costs.

²²² The PTA will take the EU guidelines into account (The WACC Notice) when calculating WACC.

1760. The PTA now has the Mila cost analysis for hosting and access to electricity for processing by the Administration will decide when the next review will take place when a conclusion is reached in that analysis. The PTA has previously scrutinised and endorsed such a cost analysis from Mila.

1761. As stated in Section 10.7.1 here above, Mila is obliged to provide access to the company's ducts and conduits that are not fully utilised. The cost of such access has not been calculated in this country, as there has not been much demand for such access in the past years. The situation now has changed in this respect, and the PTA is processing a cost analysis from Mila for access to ducts and conduits.

1762. In the EU Commission recommendation dated 11 September 2013 on the implementation of harmonised non-discrimination obligations and cost analysis methodologies in order to increase competition and strengthen investments in the next generation of access networks (NGA)²²³ the manner in which costs for reusable civil engineering assets are calculated, is prescribed.²²⁴ In articles 34-36 of the recommendations²²⁵ and ducts are categorised under such assets. There it is stated among other things that the decision on costs shall be based on book price of assets less accrued depreciation and fully depreciated assets that are still in operation should therefore not be included in the cost base. It is also stated there that if data are not sufficiently reliable as a basis for calculation, this price shall be decided on the basis of a benchmark.

1763. The PTA intends to follow these guidelines when deciding the tariff for access to ducts. If there is not sufficient information to decide the price on the basis of historical costs, the PTA can conduct benchmarking with all states that use similar criteria as a basis, as described here above.

1764. Mila shall also provide access to electricity where this is feasible, see Section 10.7.1 here above. Pricing of this access shall be cost-oriented where cost is allocated to the relevant service (FAC).

10.7.5.6 Fibre-optic local loops

1765. PTA preliminary draft allowed for an obligation being imposed on Mila on Markets 3a and 3b, for price control, which constituted cost analysed prices for wholesale access to goods and service, both on the copper network and fibre-optic network. This constituted in addition

²²³ Commission recommendations of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.

²²⁴ The recommendations contain the following definition: '*Reusable civil engineering assets*' are those legacy civil engineering assets that are used for the copper network and can be reused to accommodate an NGA network."

²²⁵ "34. NRAs should value reusable legacy civil engineering assets and their corresponding RAB on the basis of the indexation method. Specifically, NRAs should set the RAB for this type of assets at the regulatory accounting value net of the accumulated depreciation at the time of calculation, indexed by an appropriate price index, such as the retail price index. NRAs should examine the accounts of the SMP operator where available in order to determine whether they are sufficiently reliable as a basis to reconstruct the regulatory accounting value. They should otherwise conduct a valuation on the basis of a benchmark of best practices in comparable Member States. NRAs should not include reusable legacy civil engineering assets that are fully depreciated but still in use."

35. When applying the method for asset valuation set out in point 34, NRAs should lock in the RAB corresponding to the reusable legacy civil engineering assets and then roll it forward from one regulatory period to the next.

36. NRAs should set the lifetime of the civil engineering assets at a duration corresponding to the expected period of time during which the asset is useful and to the demand profile. This is normally not less than 40 years in the case of ducts."

to obligations that were imposed in 2014 where cost analysed prices were not prescribed on fibre-optic local loops.

1766. In the consultation on the PTA preliminary draft, comments were submitted by the Siminn Group and by number of municipalities, on the PTA plans to prescribe a cost analysed tariff for access to fibre-optic local loops. The main comments are specified here below, but more detailed discussion can be found in Appendices B and C.

1767. Mila considered that the PTA had not endeavoured to demonstrate the factors that could lead to the application of ERT test instead of price control, pursuant to articles 48 and 49 in the Commission recommendations, dated 11 September 2013 on the implementation of harmonised non-discrimination obligations and cost analysis methodologies. Mila furthermore indicated significant fibre-optic network deployment by other network operators. Mila did not think it was correct as asserted by the PTA that deployment of Next Generation access networks (hereafter NGA networks) was so advanced that there was no longer any need to base obligations on incentives for development. Mila considered that the planned obligation for “single price across the country” would lead to profitable development in mostly urban areas where competition was most effective, subsidising uneconomic development elsewhere. Such an obligation would impair Mila’s competitiveness in competitive areas and thus diminish incentive for investments in uneconomic areas. Mila considered that the planned obligation did not harmonise with item c of paragraph 3 of article 27 of the Electronic Communications Act, to the effect that the imposition of obligations should, among other things be justifiable, having taken into account the initial investment of the owner of facilities and the risk that had been taken with the investment, nor did it harmonise with the principle of proportionality.

1768. In a report by Analysys Mason (AM) which was part of the Mila comments, it was indicated that the only arguments based on price that were used to support the price control obligation, were unproven assertions by GR about predatory pricing by Mila. AM considered ERT to be a better option than price control and referred to precedent in other EEA states.

1769. Siminn considered it to be unauthorised to apply price control unless excessively high pricing or too small a gap between wholesale and retail prices were demonstrated.²²⁶ Siminn considered that purchasers of the wholesale service could not leverage competition between network operators if there was no flexibility in pricing.

1770. Three municipalities outside the Capital City Area: Fjarðabyggð, Snæfellsbær and Stykkishólmur submitted comments where they emphasised that it was important that the PTA did not impose obligations that could hinder further development of fibre-optic networks in the countryside. It was important that an environment should be created that supported continued development in urban kernels in the countryside in accordance with the Althingi policy in electronic communications for the years 2019-2033.

1771. Tengir, Nova, GR and Vodafone supported the plans for price control on fibre-optic, as presented in the preliminary draft. Tengir considered the obligation to be important because of alleged under-pricing and supported the PTA plans to add price control to Mila fibre-optic on the relevant wholesale market (see Appendix B). GR was not in favour of the PTA changing its plans with respect to price control (see Appendix C). GR considered that price control did not diminish incentive for investment, as that incentive was determined by other factors, among

²²⁶ The PTA does not agree with this understanding of Siminn, and the comment is answered in Section 10.2.5 in Appendix B.

other things, state aid. GR considered that arguments had not been provided for ERT being more appropriate than price control, and foreign precedent was not necessarily significant with respect to conditions in this country. GR considered that the legal authority for applying ERT pursuant to the EU Commission recommendations to be unclear. GR furthermore criticised PTA revaluation of conditions for an ERT obligation. In addition to this, GR submitted various other comments and arguments that are described at length and answered in Appendix C. Nova did not object to imposition of an ERT obligation instead of cost analysis, obligation, as the company considered that experience of cost analysis was not favourable. The company considered, however, that the elaboration, adoption and execution of the test should be done meticulously.

1772. In the additional consultation on changed plans by the PTA with respect to price control on fibre-optic, the CA expressed doubts that the ERT could suffice to support more effective competition and the CA considered that in the light of experience and detailed analysis in the PTA preliminary draft, it should be deemed unlikely, rather than otherwise, that competition would be strengthened, or would be more effective without further obligations on tariffs. Further discussion on these CA comments can be found in Appendix C.

1773. As a result of comments received, the PTA decided to carefully scrutinise the considerations of the parties and to revisit the criteria for an obligation on price control of Mila fibre-optic network, among other things the PTA assessment of market conditions, the relevant recommendations, pursuant to the EEA agreement and practices in other EEA states.

1774. Pursuant to article 17 of the Act on Electronic Communications number 81/2003, the implementation of market analysis, which is the basis for a decision on obligations, shall be in accordance with obligations pursuant to the EEA Agreement. The Electronic Communications Act is based on the directive on telecommunications from 2002, which is part of the EEA Agreement, see Appendix XI to the Agreement. In article 19 of the Directive 2002/21/EU from 7 March 2002 on common regulatory framework for electronic communications networks (Framework Directive). Authorisation is prescribed for the EU commission to issue recommendations on common practices in applying the provisions of the directive on electronic communications. According to the provision, NRAs are obliged to meticulously follow such recommendations and to provide specific arguments if they consider it necessary to deviate from the recommendations.

1775. The EU Commission issued recommendations on access to Next Generation access networks on 20 September 2010²²⁷. In the preamble to the recommendations (item 3). Emphasis is placed on the importance of consistency of regulatory approaches in monitoring electronic communications markets and for this reason it was considered appropriate to issue recommendations that provided NRAs with guidance that was intended to prevent inappropriate divergences of regulatory approaches while allowing NRAs to take proper account of national circumstances.

1776. In the preamble (item 6), emphasis is also placed on predictability in measures taken by NRAs, which is a key issue in incentive for investment. It was therefore important that there should be stability in the approaches of NRAs in order to prevent uncertainty associated with

²²⁷ RECOMMENDATIONS COMMISSION RECOMMENDATION of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU)

periodical market reviews and new decisions on obligations, that NRAs should cast light on how changes in market circumstances might affect the imposition of obligations.

1777. In the recommendations, emphasis is placed on cost related tariff, and there is also a discussion on NRAs being able to endorse flexibility in charges, for example with discount terms for long-term agreements which would mitigate risks in investment. In such instances care should be taken to ensure non-discrimination and that there was a sufficient difference between wholesale and retail prices. It was recommended that NRAs should apply ex ante defined margin squeeze tests to monitor that pricing was not damaging for competition, see paragraphs 26 and 27 with respect to local access and paragraph 36 with respect to central access.

1778. In 2013, the Commission issued new recommendations on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment²²⁸. The purpose of the recommendations was to improve monitoring methodologies in order to support competition, strengthen the inner market for electronic communications and to support investment in next generation networks. The recommendations were also intended to mitigate legal uncertainty and to increase predictability for the long term, in connection with investments in next generation networks. The recommendations were to provide further guidance on the main principles of monitoring measures which have been provided in the above specified recommendations 2010/572/EU, particularly with respect to the circumstances under which one should impose obligations on cost related wholesale prices and the circumstances under which this should not be done.

1779. The main rules presented in the recommendations apply to Markets 4 and 5, pursuant to the older recommendations on the relevant markets or other markets that would be subsequently defined and belong to the same network elements. These markets correspond to Markets 3a and 3b, pursuant to the recommendations currently in force on the relevant markets.

1780. In the recommendations²²⁹ it is stated among other things that in order to support investments and innovation, it was necessary to allow parties that invested in NGA networks a certain latitude in pricing. This would allow SMP operators and parties requesting access to share part of the investment risk by specifying wholesale prices in accordance with obligations of those requesting access. This could mean lower prices for long-term agreements with assured purchase of a specific amount, which would mean that those purchasing access would take part of the risk with respect to future demand. Flexibility in pricing at wholesale was also necessary to create latitude for varying product development and pricing at retail level.

1781. In order that the latitude in pricing does not lead to excessively high wholesale prices of a company with SMP, a safeguard needed to be in place to protect competition. In addition to stricter non-discrimination obligations, for example EoI and technical replicability, economic replicability for downstream services should be ensured and price control should be applied to copper connections.

1782. NRAs should regularly request information on investments and distribution plans, with respect to NGA networks, in order for it be possible to monitor development of the investment

²²⁸ COMMISSION RECOMMENDATION of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU)

²²⁹ Discussion on applying ERT instead of cost analysis and the purpose of this can also be found in items 49-69 in the preamble, in items 48-58 in the recommendations and in Appendix II to the recommendations.

environment and competitive conditions. Such provision of information should be described in the relevant decision on obligations.

1783. With the advantages of flexible pricing in mind, pursuant to the above specified approach, one might consider that the wholesale price for access to NGA local loops or analogous solutions would provide adequate restraint to counteract price related problems if: ex ante.

- (i) competition from other network operators or “price anchor” from cost related wholesale prices on the copper network imposed visible constraints on pricing at retail level.
- (ii) that an ex-ante economic replicability test (ERT) was in place in those instances where an obligation on costs related prices was not in place and
- (iii) that an obligation was in place to provide wholesale access on the basis of an EoI obligation.

1784. If these conditions were in place, NRAs should not apply an obligation for cost related prices, with respect to wholesale access to NGA networks.

1785. Latitude in pricing of fibre-optic was with the reservation on measures that might be adopted to prevent too small a difference between wholesale and retail price, if such a situation was revealed by an economic replicability test.

1786. A decision not to apply an obligation for cost analysis should not cover basic physical infrastructure such as ducts and conduits.

1787. It was expected that NRAs could impose an obligation on cost related price of fibre-optic network, without conducting a new market analysis, given that circumstances on the market had not changed much, if the relevant company with SMP had not fulfilled the conditions that had been set in connection with the non-discrimination obligation. A provision should be made on the possibility of such remedies for breaches of the non-discrimination obligation should be included in the initial decision on obligations.

1788. When one examines practices within the EEA, with respect to regulation of NGA networks, as it appears in the newest market analyses and decisions of member states, it comes to light that the majority apply lighter obligations than cost analysis with respect to NGA networks. Those states that have applied an obligation for cost analysis have received comments on this in appraisals from the EU Commission. As an example, one could mention observations in a letter from the Commission concerning decisions made by Estonia in 2017 and Poland in 2019.

1789. It is clear that practices within the EEA tend towards the application of lighter obligations than cost analysis with respect to NGA networks, as is recommended in the Commission recommendations from 2013 (2013/466/EU). The Commission has emphasised in its comments on market analyses and decisions on obligations, that the main principle is followed as indicated in the recommendations of not applying stricter obligations unless necessary in the light of specific circumstances in the state in question.

1790. With the available comments and recommendations from the EU Commission in mind, the PTA has reviewed its conclusion with respect to the need for an obligation for cost analysis

of fibre-optic local loops which was presented in the preliminary draft to this analysis. After having examined its reasoning in the preliminary draft regarding lack of a copper anchor in the light of comments submitted and taking into account the recommendations 2013/466/EU, the PTA considers that the Administration had underestimated the impact of cost analysed prices preliminary for copper local loops. It is clear that the retail price for fibre-optic network echoes the retail price for the copper network, as electronic communications companies do not distinguish between underlying networks when they price their retail service. Though the retail price of line charge has increased faster than increases of the local loop charge in wholesale, it is not appropriate to also take into account pricing of retail packages as a whole. The price of service packages has generally not risen in the same manner as the line charge. Copper local loops are still about 64% of the total number of Mila local loops on active lease, so they still represent a significant size on the market.

1791. In the consumer survey commissioned by the PTA in October 2020 it came among other things to light that a large number of users were ready to switch over to Ljósnet (that is to say VDSL copper local loops) if the price of packages on the fibre-optic network (FTTH) rose by approximately 10%. It also came to light that speed was in general not a deciding factor when choosing Internet service. This supports the conclusion that cost analysed connections over copper local loops, can exercise restraint on retail fibre-optic service.

1792. Another condition that pursuant to recommendations 2013/466/EU could lead to not prescribing cost analysed price on fibre-optic, is competition from other networks. It is clear that there are fibre-optic networks in place not controlled by Mila, or by the Siminn Group in the operational territory of GR, Tengir, Snerpa and Austurljós and where state aided networks in the countryside are not operated by Mila. In each area there is however only one access network, except in Reykjanesbær where Kapalvæðing operates a cable system. In the preliminary analysis the PTA considered it to be possible that the monthly prices on offer in those networks could constrain Siminn retail prices for Internet connections over fibre-optic. As is stated in the PTA geographic analysis, there seems to be more competitive pressure inside some areas where an alternative fibre-optic network has been deployed. The PTA considered, however, that competitive pressure was not sufficient. Where only one competitor was in place in each area and where competitive conditions were not “significantly” different between areas, as Siminn had been increasing its market share in these areas in the most recent months. In the opinion of the PTA, the competitive pressure in question is not sufficient for it to be deemed that effective competition pertains at wholesale level, but it could be sufficient to hinder parties with SMP from demanding an excessive retail price. One must keep in mind that Mila fibre-optic local loops are mostly either in competition areas or are subject to state rules which means that there must be some restraint in pricing in place.

1793. The PTA considers that keeping in mind the most common practices in the EEA, where it is most common to apply lighter obligations on fibre-optic in accordance with the recommendations. 2013/466/EU, it is thus appropriate to not apply a stringent assessment of the existence of the above specified conditions. It is clear that they are in place to some extent, and the PTA considers this to be sufficient to come to the conclusion that it is appropriate to apply an ERT test instead of cost analysed fibre-optic.

1794. Another factor that must be in place, pursuant to the recommendations 2013/466/EU, if one is not to apply an obligation for cost analysed prices of fibre-optic, is to apply an EoI obligation. Such an obligation was imposed on Mila in 2014 and has been adopted and the PTA monitors that it is complied with.

1795. Part of the PTA arguments in the preliminary analysis for plans for cost analysed prices of fibre-optic, where assertions by competitors that Mila predatory priced fibre-optic connections in competition areas. The PTA considered that such behaviour could in the long term create a better position for Mila to collect an excessively high prices, if competitors could not compete with current Mila prices. The PTA does not in reality have irrefutable proof that pricing is below cost. Cases that relate to damaging predatory pricing belonged rather with the Competition Authority than with the PTA. The PTA considers that for the time being this did not justify imposition of an obligation for cost analysed prices on fibre-optic connections on the relevant markets. With respect to the Siminn comment that on the pricing could not be grounds for imposing a price control obligation pursuant to article 32 of the Electronic Communications Act, the PTA would like to note that the alleged predatory pricing was not the main argument for imposing such an obligation. As described in the discussion on competition problems in Section 10.2 here above, it is the structure of the market, where a company with SMP is vertically integrated, that is considered to result in high wholesale prices if no action is taken.

1796. The PTA considers it appropriate to concur with the arguments of the Siminn Group, that there is still a considerable way to go until the distribution objectives for fibre-optic local loops is achieved. According to the Parliamentary opinion on policy in electronic communications for the years 2019-2033, the objective is the access to fibre-optic for residences and commercial premises will be 99.9%. Fibre-optic deployment is well advanced in the operational territories of GR and Tengir and in those rural communities which have received funding from the Telecommunications Fund. There are however very many smaller urban communities in the countryside where fibre-optic local loops have not been deployed. Mila has deployed many fibre-optic local loops in the GR operating territory and to some extent in the Tengir operational territory, but that development is not completed. This means that there are not two competing fibre-optic networks at all locations in those areas. Mila states that it still remains for the company to deploy fibre-optic to 2/3 of addresses in the country, and at the end of 2020. The Mila fibre-optic network reached just over 47% of homes and companies in the country and 64% in the Capital City Area. The PTA considers it appropriate to avoid obligations that could put at risk the objective of countrywide fibre-optic deployment if at all possible. Considerable distribution had taken place in VDSL there are no plans for further investment in such connections to any significant degree. Although, VDSL networks can be classed as NGA networks, it is clear that the long-term objective is that fibre-optic local loops will be at all locations where such is possible. For this reason, the PTA considers that in the light of the status of development of fibre-optic local loops across the country, it is appropriate for the time being not to impose obligations for a cost analysed prices on such connections.

1797. In addition to the above issues on which the PTA has reviewed its assessment, a number of factors with respect to the status of related markets have changed somewhat since the preliminary draft was published. In the first case, Siminn has made an agreement for access to the GR network, and this should strengthen the GR position on the relevant markets to a certain degree, but it still remains to be seen how much business the Siminn will do with GR, and it is expected that Siminn will commence offering service on the GR network in the second half of 2021. Access to Siminn TV content has furthermore become easier and the price for English football in wholesale is lower than it was before, which means that control of TV content is not as decisive a factor with respect to the Siminn Group's market strength as it has been. On the other hand, an agreement has not been reached between Siminn and Vodafone or with other parties on the wholesale or retail of Sjónvarp Símans Premium.

1798. With respect to the discussion here above, the PTA has decided not to impose an obligation on Mila for cost analysed prices for access to fibre-optic local loops on Market 3a for the time being.

1799. The PTA considers it appropriate that access through, VDSL connections, whether this is VULA or bitstream, is subject to an obligation for cost analysed prices in accordance with the preliminary draft, though, such connections can be categorised under the definition of NGA network, pursuant to the recommendations. 2010/572/EU and 2013/466/EU. The same can be said about Mila backhaul Ljósliða. These connections are based on copper local loops from street cabinet and one can assume that investments in such connections is mostly completed. The PTA considers there to be no reason to apply lighter obligations on these connections, as there is no need for incentives for further investment in them. The same can be said about ducts and conduits in areas where such obligations will be in force.

1800. With respect to wholesale access to fibre-optic local loops on the relevant market, which are not intended to be subject to a cost analysis obligation pursuant to the above, the PTA considers it proper that an obligation rest on Mila for justified and fair pricing, without discrimination.

1801. Mila shall publish the tariff for fibre-optic local loops and for VULA service on fibre-optic local loops. Mila is authorised to offer discounts of monthly fees for fibre-optic local loops for long-term agreements similar to the discounts offered in leased lines and access to facilities. The following discounts are now available in leased lines and access to facilities:

- Agreement length one year, discount 5%. Exit charge 1 month lease rental.
- Agreement length 2 years, discount 10%. Exit charge 2 months lease rental.
- Agreement length 3 years, discount 15%. Exit charge 3 months lease rental.

1802. The obligation furthermore rests on Mila and Siminn to ensure that there is not too small a difference between price of wholesale procurements and the price on downstream markets, including the retail price of the most important subscription packages that contain Internet access. In this connection, the companies will be required to withstand an ERT test pursuant to a separate decision to that effect, see discussion in Section 10.7.2.6.

1803. Mila and Siminn will furthermore be banned from applying damaging under-pricing at wholesale and retail levels on the relevant and related markets.

1804. Mila will however be authorised latitude in pricing in order to support increased use of investments in fibre-optic connections, within the limits set by the ERT test.

1805. Siminn will be required to ensure that the most important subscription packages that contain Internet connections are priced in a normal manner, and such that margin squeeze does not occur between the retail price and wholesale procurement.

1806. Mila and Siminn will be required to provide the PTA with all necessary information to confirm whether pricing in wholesale and retail is in accordance with the above.

10.7.5.7 Fibre-optic local loops based on grants from the state and/or municipalities

1807. As stated here above, there has been significant deployment of fibre-optic networks that are supported by municipalities and/or the state, mainly through the project, Iceland Optical Connected, which is operated by the Telecommunications Fund. Given the information that the PTA has, local fibre-optic networks have been deployed, or work has been commenced on their deployment, in about 55 municipalities outside the Capital City Area and Akureyri. Mila and Tengir have been involved in the deployment of or have purchased a number of these networks. Many of these networks only reach sparsely populated communities in municipalities and not urban clusters, as the emphasis was placed on providing state aid first to access addresses where it was perfectly clear there were no grounds to deploy fibre-optic on market terms. This however does not exclude the possibility that access addresses in such urban clusters in the countryside may at a later date enjoy state aid for fibre-optic rollout. Electronic communications infrastructure built with state aid is intended not to distort possible competition in the relevant service area. This is not only a question of impairing possible value of existing electronic communications infrastructure, but also a matter of having to elaborate pricing in such a manner that it emulates market circumstances to the extent possible.

1808. In paragraphs 5 and 6 of article 52 in the regulation of the EU Commission number 651/2014 from 17 June 2014, where specific categories of facilities are named that harmonises with the inner market for the application of articles 107 108 of the settlement, which was introduced with regulation 1165/2015 there is provision on access to state aided networks and pricing. An operator of the network system shall provide the broadest possible wholesale access, active and passive, with fair conditions and without discrimination, including material breakdown in the case of NGA access networks. Such wholesale access shall be provided for a minimum of 7 years and the right to access to ducts or masts shall not be subject to time limits. In the case of assistance with deploying ducts, they should be sufficiently large to carry many cable systems and varying network topology. The price of wholesale access to be based on the main principle of pricing which is prescribed by the NRA and on the criteria will apply in analogous, more competitive areas in EEA member states having taken into account the assistance that the network system operator has enjoyed. They shall be consultation with the NRA with respect to access conditions, including on pricing, and if a dispute should arise between those who request access, and the operator of the basic infrastructure has enjoyed a subsidy.

1809. The objective is that pricing of wholesale access to the state supported electronic communications infrastructure should support sustainable service competition at retail level. The tariff for state-supported networks needs to fulfil basic conditions that apply to them, pursuant to the EEA rules on state aid.

1810. As has been stated here, certain rules apply about networks that have received aid from the state or municipalities and in the opinion of the PTA these rules continue to apply when the networks are sold.

1811. All local loops that have been deployed to help of state aid in recent years fibre-optic local loops and therefore not covered by the obligation for cost analysed prices pursuant to this analysis. If they are owned by or under the long-term control of Mila, the however subject to other obligations that the PTA imposes subsequent to the analysis.

10.7.5.8 Conclusion on price control

1812. With reference to article 32 of the Electronic Communications Act the PTA intends to impose on Mila an obligation for price control for wholesale access to the company's copper access networks provided at a fixed location and to Ljóslína in street cabinets, with related facilities. The tariff for the access in question that is provided over copper local loops shall be cost-oriented. This obligation applies also to VULA service on copper local loops.

1813. When deciding the price of local loop lease for copper local loops, Mila shall use historical costs allocated to the relevant service (HCA FAC). Mila shall submit the conclusion of the cost analysis for copper local loops to the PTA for endorsement. The tariff shall then be reviewed regularly in accordance with an update of the cost analysis each instance. The PTA plans to allow for 2-3 years between revisions of the tariff and in addition the tariff shall be increased annually using the consumer price index having taken into account the efficiency requirement that is decided with each review of the tariff. The first annual increase pursuant to the index will be implementable at the first turn of year subsequent to the next review Mila tariff on this market.

1814. An obligation on cost analysed tariff does not apply to Mila fibre-optic local loops, other than backhaul Ljóslína local loops (Ljóslína in street cabinets). Mila pricing of the local loop shall, on the other hand be justifiable and fair and without discrimination. The obligation rests on Mila and Siminn to ensure that there is not too small a difference between price of wholesale procurements and the price on downstream markets, including the retail price of the most important subscription packages that contain Internet access. In this connection, the companies will be required to withstand an ERT test pursuant to a separate decision to that effect, see discussion in Section 10.7.2.6. Mila and Siminn are furthermore banned from applying damaging predatory pricing at wholesale and retail levels on the relevant and related markets. Mila is authorised latitude in pricing within the limits prescribed above, in order to support increased use of investments in fibre-optic connections. Mila shall publish a tariff for fibre-optic local loops and VULA service on fibre-optic local loops.

1815. Siminn will be required to ensure that the most important subscription packages that contain Internet connections are priced in a normal manner, and such that margin squeeze does not occur between the retail which is and wholesale procurement.

1816. Mila and Siminn will be obliged to provide the PTA with all necessary information to confirm whether pricing in wholesale and retail is in accordance with the above.

1817. In accordance with article 32 of the Electronic Communications Act, the tariff for lease of facilities, such as in telephone exchanges and technical spaces, and related service shall be cost-oriented. Mila shall submit the results of cost analysis of facilities and related service for copper local loops to the PTA for endorsement. The PTA now has the Mila cost analysis for hosting and access to electricity for processing by the Administration will decide when the next review will take place when a conclusion is reached in that analysis. Mila tariff for conduits and ducts shall be based on costs or benchmarking as is specified in more detail in Section 10.7.5.5 here above.

10.7.6 Obligation for cost accounting

1818. Pursuant to article 32 of the Act on Electronic Communications the PTA can impose obligations for cost accounting for specific types of interconnections or for access, in

accordance with a cost related tariff. According to Chapter IV of Regulation no. 564/2011, on bookkeeping and cost analysis in the operations of electronic communications companies, an electronic communications company with SMP on which special obligations have been imposed pursuant to the Act on Electronic Communications shall inform the PTA on the structure of separation in bookkeeping, with respect to income and expenses, among other things for the user network and the backbone network.

1819. Cost accounting is necessary when the obligation for price control has been imposed on an electronic communications company with SMP. Subsequent to this, the PTA plans to impose on Mila an obligation for cost-oriented tariff and the PTA also intends to impose an obligation for cost accounting. The obligation for cost accounting supports the obligation that the tariff is cost related, and it is necessary for the implementation of separation of accountancy and can support surveillance of the non-discrimination obligation.

1820. In order for Mila to demonstrate that the tariff for a specific kind of service or product is cost-oriented, it is necessary to practise cost accounting that captures, identifies, assesses and allocates the relevant costs to the services or products in accordance with recognised rules, that is to say a causal relationship.

1821. The PTA considers that without the obligation for cost accounting, Mila could price its services on the relevant market under or above cost and the Siminn Group could have an abnormally small difference between wholesale and retail prices which would have negative consequences for users. Without the obligation for cost bookkeeping the PTA could not ensure that pricing took costs into account thus prevented problems of this kind.

1822. The PTA plans to impose an obligation on Mila for cost accounting with regard to those parts of the electronic communications operations specified above, and that are necessary for giving access to fixed access networks, for hosting and ducts and conduits. Mila shall submit to the PTA a description of the cost accounting for fibre-optic and copper local loops and related facilities, and for ducts and conduits and shall publish cost categories, cost items and their relationship to the cost driver.

1823. Mila shall no later than 1 April 2022, submit to the PTA a description of the cost accounting bookkeeping for fibre-optic and copper local loops and related facilities, and for ducts and conduits and publish the main cost categories and the rules used to allocate costs and revenue to the relevant units. Mila shall at the same time deliver a report to the PTA from an independent auditor showing that there is correspondence between the Siminn description to the PTA of how costs are allocated and the implementation in Mila's cost bookkeeping system.

1824. In accordance with the above Mila shall maintain cost bookkeeping for wholesale access to fixed line access networks and to ducts and conduits in order that Mila can demonstrate that the tariff for a specific type of service or product takes historical costs into account. Mila shall furthermore deliver a description to the PTA of the Mila cost accounting on this market and on related facilities and shall deliver a report to the PTA from an independent auditor on its cost accounting. Specific obligations may be defined that relate to Siminn cost accounting, in connection with the decision on the ERT test and its implementation.

11 Imposition of obligations on the wholesale market for central access provided at a fixed location for mass-produced products (Market 3b)

11.1 In general on obligations

1825. According to paragraph 2 of article 17 of the Electronic Communications Act, market analysis shall be the basis for decisions on whether the PTA shall impose, maintain, amend or withdraw obligations on companies with significant market power. If a market analysis reveals that there is no effective competition in the relevant market and that one or more electronic communications undertakings in that market possess significant market power, the PTA is authorised to impose one or more obligations on the company that is designated as having significant market power, in accordance with article 18 of the Electronic Communications Act. If the PTA has previously imposed specific obligations on operators, these shall be reviewed and either maintained, amended, or withdrawn in accordance with the results of the market analysis.

1826. Article 27 of the Electronic Communications Act states that when an electronic communications undertaking is designated with significant market power, the PTA may impose obligations on it concerning transparency, non-discrimination, separation of accountancy, open access to specific network facilities, price control and cost accounting, as necessary for the purpose of promoting effective competition²³⁰. These obligations are described more fully in Articles 28 – 32 of the Act.

1827. When selecting obligations to be imposed in order to solve specific competition problems, it is necessary to use several fundamental principles as guidelines.²³¹ All obligations imposed shall take into account the nature of the specified competition problem and shall be designed to solve it. They shall be transparent, justifiable, reasoned, and in line with the objectives they are designed to achieve – that is, to promote competition – as well as contributing to the development of the internal market and safeguarding users' interests. Obligations must be proportionate and may not impose heavier burdens on operators than is deemed necessary.

1828. In a report²³² from the European Regulators Group (ERG)²³³ on ex ante obligations emphasis is placed on developing competition in the construction of electronic infrastructure and networks where this is considered desirable. In such instances the imposed obligations should support such development. When infrastructure-based competition is not considered desirable due to significant and persistent economies of scale and scope or other barriers to entry, it is necessary to guarantee sufficient access to electronic communications networks and equipment at the wholesale level. In this context, it is necessary to ensure two things: first, to encourage service-based competition; and second, to guarantee a sufficient fee for access to existing electronic communications networks, thus providing an incentive for further investment in such networks, as well as for their renovation and maintenance. In addition to the above specified ERG report on obligations in general, the PTA also took account of the

²³⁰ See also Articles 9 - 14 of the Access Directive.

²³¹ See article 8 of the Framework Directive.

²³² ERG (06) 33, Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework - Final Version May 2006.

²³³ Now BEREC: Body of European Regulators for Electronic Communications.

document on the BEREC Common Position on obligations on the wholesale market for network access to fixed line networks, which was published in 2012.²³⁴ The PTA furthermore takes into account the EU recommendation on access to Next Generation Access networks from 20 September 2010²³⁵ and the recommendations on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.²³⁶

1829. For the long term, service-based competition that has its foundation in steered access to a cost-analysed price can be a tool for generating competition in the regeneration of electronic communications networks. This refers to what is called the investment ladder the objective of which is to create conditions that make it possible for new operators to build up their electronic communications networks in incremental steps.

1830. In selecting the obligations that are best fitted to promote competition in a given market, it is often beneficial to consider the position that would exist if obligations were not imposed on undertakings in the relevant market and whether it would be sufficient to use competition legislation alone to guarantee competition.

1831. The objective of obligations on the wholesale market here under discussion is to strengthen competition on the downstream retail market for broadband connections, which is described in Section 3 here above, for the benefit of consumers.

11.2 Competition problems

11.2.1 General

1832. Obligations are imposed on companies with significant market power with the aim of combating real and/or potential problems in the field of competition on the market in question, and on the downstream retail market. Problems in the field of competition, with the exception of problems that can derive from market structure, refers to any kind of behaviour by a company with SMP, which is intended or leads to competitors being forced out of markets, which prevents potential competitors from entering the market and/or damages consumers' interests. When obligations are applied pursuant to the Electronic Communications Act, the reason does not need to be that a dominant market position is in reality being leveraged, and it is not a criterion that a competition infringement might have been committed, but it suffices that competition problems could possibly arise from the prevailing circumstances, among other things because of specific market structure, that are detrimental to competition.

1833. A company with SMP can leverage its market power in many ways. With vertical market strength the company can deny other companies' access to its system, can price services too high/low, discriminate against companies on the basis of price for service or resources and can take advantage of unfair use of competitors' information. These aspects affect the downstream wholesale market, and related retail market. Another consequence of a company's SMP can be

²³⁴ BEREC Common Position on best practices in remedies on the market for wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location imposed as a consequence of a position of significant market power in the relevant market - BoR (12) 127.

²³⁵ RECOMMENDATIONS COMMISSION RECOMMENDATION of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU).

²³⁶ COMMISSION RECOMMENDATION of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU).

that a company hinders access by others to a market, practises abuse with excessive pricing which returns inflated profits (where a company with SMP sets prices without needing to take customers or competitors into consideration) and in addition to this there is a significant risk of inefficiency in production as competition is unable to exert the constraints necessary. These aspects related rather to competition on the relevant wholesale market, which can then in turn impact on a wholesale market higher up in the value chain and affect a related retail market.

1834. Discussion on competition problems in this analysis is in many respects analogous to the discussion in the PTA analysis of Market 5 in 2014, as changes in circumstances have not occurred since 2014, that would lead to changes in solutions of the problems that then existed, with the possible exception that more emphasis needed to be put on potential horizontal competition problems on the relevant market. The competition problems that the PTA considers existing on Market 3b are mostly the same or analogous to those described in Section 10.2 here above in discussion on Market 3a.

11.2.2 Competition problems on the relevant market

1835. In Section 9 here above, the PTA came to the conclusion that competition on Market 3b was not efficient and that Mila and in fact the Siminn Group had SMP on the market. Such a situation means that the company, as part of the Siminn Group has such economic strength on the market that it can impair efficient competition and that it can to a substantial extent operate without concern for competitors, customers and consumers.

1836. In the following Sections there is discussion on competition problems created by competitive conditions on the market, both on the relevant market and on related markets. Among other things, an assessment shall be made of what competition problems could arise if no obligations were in place. As previously stated, it is necessary to demonstrate that damaging behaviour has taken place, but rather it suffices to indicate likely incentives and opportunities for behaviour that could inhibit competition, among other things as a result of market structure. Nevertheless, there will also be discussion on instances that have occurred in past years that can indicate that the position of Mila and the Siminn Group in relation to Market 3b can create competition problems. Analysis of competition problems aims to provide a basis for a decision on imposition of obligations and to identify the types of obligations that could be most useful in combating competition problems on the market.

1837. In the ERG report from 2006 on a common position with respect to the imposition of obligations on electronic communications markets²³⁷, there is discussion on the main categories of competition problems that can arise on electronic communications markets. Problems are named there that are related to vertical integration, or horizontal concentration, significant market power on the relevant market and call termination. The PTA furthermore takes into account document from BEREC from 2012 in this connection.²³⁸ In the opinion of the PTA the most likely competition problems on a wholesale market like Market 3b are on the one hand related to vertical integration of the company and transfer of SMP to related markets and on the other hand problems that result solely from SMP on the relevant market. In the light of the fact that Mila still has SMP on the relevant market and as part of the Siminn Group,

²³⁷ ERG (06) 33, Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework - Final Version May 2006.

²³⁸ BoR (12)128: Revised BEREC Common Position on best practice in remedies on the market for wholesale broadband access (including bitstream access) imposed as a consequence of a position of significant market power in the relevant market.

which is a vertically integrated economic unit, one must consider that these problems can arise in this country and have in fact done so in various instances. In the following sections, these problems are described mostly in a general manner, and after that there is discussion on the individual instances that have arisen.

11.2.3 Vertical integration and transfer of SMP

1838. Vertical transfer of SMP is described as where a vertically integrated company with SMP at wholesale level endeavours to transfer market power to a downstream market by excluding or working against competitors on those markets. Market 3b is a wholesale market and a number of downstream retail markets are related to it, such as the retail market for voice telephony over a connection provided at a fixed location with both traditional PSTN technology and IP communication protocol (VoIP), the retail market for Internet connections and the retail market for IPTV. Other retail markets can be defined later, by the PTA or by other NRAs, for other retail sales, now or later, provided through local loops.

1839. One can make a distinction between the three main categories of transfer of SMP:

- a. Refusal of access.
- b. Pricing.
- c. Other aspects relating to communications with competitors.

11.2.3.1 Refusal of access

1840. A company which has SMP on the wholesale market can tend to deny companies, that are competing with the company on downstream markets, access to wholesale service, for the purpose of preventing competition or at least making it more difficult for competitors. Such behaviour can be manifested in absolute refusal of access or that access is provided at such unreasonable terms, including pricing, that is tantamount to refusal. The PTA considers that Mila had the opportunity and incentive to deny Siminn competitors' access to Market 3b for the purpose of making it difficult for them in competition on downstream markets, if obligations were not in place to oblige the company to provide access.

1841. For refusal of access to create significant competition problems, circumstances must generally exist where competitors on related markets do not have the option of using other networks that could provide them with comparable access at comparable terms. Despite the fact that in this country, fibre-optic networks have been deployed by parties other than Mila, they do not have national coverage and at many locations retailers need to rely on Mila wholesale service. One also has to keep in mind that there are still just over 30% of Internet connections in this country on the copper network, which is only available from Mila. Mila has also taken over operations or purchased many of the local fibre-optic networks that have been deployed in the countryside with grants from the Telecommunications Fund. Mila refusal of access to connections on Market 3b could have serious consequences for competition on downstream markets, particularly if the operational basis of competitors on the market in question is not assured because of the structure of the market and/or behaviour of the Siminn Group.

11.2.3.2 Pricing

1842. The transfer of SMP through pricing can have various manifestations, such as discrimination in pricing, cross subsidies and damaging under-pricing. The purpose of such

behaviour can be to increase costs for competitors, lower their turnover and put them in a tight position by having a very small difference between the price on the relevant wholesale market on the one hand and on downstream markets on the other.

1843. A company with SMP can have incentives to sell its wholesale service at varying prices depending on who the competitor is. For example, the company could sell to its own retail arm at a lower price than to other purchasers. This could lead to costs being higher for competitors and could make it difficult for them to compete. This could lead to there being too small a difference between wholesale and retail prices which can make it impossible for competitors to conduct their operations, with profit and can eventually drive them out of the market.

1844. Differing prices can in some instances be justifiable, for example if the cost of providing a service differs verifiably, or if discounts are given for bulk purchase. If a bulk purchase discount is however based on the number of transactions that could only apply to the retail arm of the company itself, then this indicates that this is a measure to inhibit competition. The PTA considers that if appropriate obligations are not applied then Mila will have the opportunity and incentive to discriminate between competitors in pricing on downstream markets.

1845. Cross subsidies can occur between service on Market 3b and downstream retail markets or a related wholesale market, i.e., Market 3a. A vertically integrated company like the Siminn Group could have the opportunity and incentive to collect an abnormally high price on Market 3b, and a price that is too low for the costs, on downstream markets if obligations on price control were not in place. Profit on Market 3b can then be used to subsidise loss on downstream markets. Cross subsidies of this kind put competitors on related markets in price difficulties, as there is too small a difference between wholesale and retail prices.

1846. Predatory pricing is when a company sells a product or service under a specified cost criterion. Generally, this means prices that are below average variable costs. A company with SMP on a wholesale market can have the incentive to on the price on downstream markets, for the purpose of strengthening its position and even of pushing its competitors out of the market, or to hinder the entry of new competitors. The competition authorities have in a number of instances needed to take action because of damaging under-pricing by an SMP operator, for example against Siminn in case 30/2011, see ruling by the at Appellate Committee number 10/2011 where it says, among other things:

“The dominance of the appellant on submarkets of the electronic communications market, particularly in the field of fixed line systems and mobile phone service, make it particularly urgent to prevent the appellant from leveraging his strong position there, to create a corresponding position on new or related telecommunications markets that are in development. Otherwise, there is a danger that competition will not be allowed to develop naturally on such markets”.

1847. The PTA considers that under cover of a strong market position on Market 3b, the Siminn Group could have an incentive to exercise predatory pricing on downstream markets and thus have a damaging impact on competition.

1848. With predatory pricing and cross subsidies, normal balance in pricing between Markets 3a and 3b could be distorted and this could result in making competition more difficult for competitors on related markets or even drive them out of the market. So, an abnormally small difference in price between Market 3a and Market 3b could divert competitors from Market 3a and force them to purchase more services from Mila, i.e., bitstream services on Market 3b.

11.2.3.3 Other aspects relating to communications with competitors on related markets

1849. Transfer of SMP that is not related to pricing can be in the form of various behaviour that constitutes discrimination between a company's own sales units and those of competitors. For example, this could be a case of delays in negotiations or delivery, irregular demands on counterparties in negotiations, discrimination in quality, discrimination in provision of information or misuse of information from the counterparty.

1850. A company with SMP has an incentive to delay when competitors on a downstream market request access to wholesale service. This can create competitive advantage for the company as competitors are slower to react to demand on a market when they do not receive rapid access to necessary wholesale service. Retail departments of the vertically integrated company then gain such an advantage which is called first mover advantage. It is necessary to prevent behaviour like this by imposing obligations for non-discrimination and for a maximum time that negotiations and the delivery of service, may take.

1851. In some instances, companies with SMP make irregular demands on wholesale purchases who are competitors on downstream markets. Such demands can for example relate to bank guarantees, minimum number of transactions or demands for unnecessary information.

1852. This can also be a case of discrimination in quality between the service that a company's own departments receive on the one hand and competitors on the other, e.g., with respect to reactions to faults.

1853. Problems related to communicating information between companies can in the first instance be such that the wholesale arm of a vertically integrated company provides its retail departments with better information and earlier than it does when competitors are informed, e.g., about development plans and upgrades of technical equipment. This could mean that competitors become slow to react to changes and miss opportunities to gain or retain customers that are interested in purchasing the newest service solutions on the market. A vertically integrated company's treatment of information from customers can furthermore create competition problems. When making wholesale agreements, the wholesaler receives various information concerning the operations of the wholesale purchaser, their plans and estimates of the number of users. A vertically integrated company can have an incentive to disseminate such information in some way to its retail departments, which makes it then easier for them to resist competition.

11.2.4 Problems related to assessment of SMP on the relevant market

1854. Problems related to SMP on the relevant market and that occur on the same market are various types where one could mainly mention entry barriers, abuse vis-à-vis competitors on the relevant market and related wholesale markets, abuse vis-à-vis customers and inefficiency in production.

1855. A company that enjoys SMP on the relevant market can endeavour to create new entry barriers to the market in order to inhibit new competition or to make competition difficult for competitors on the relevant market or the related wholesale Market 3a. This can e.g. be done in the form of subsidies originating from other parts of a vertically integrated electronic communications company that lead to an irregularly low short or medium-term price on the relevant market, and, which prevents competitors on that market that are not vertically integrated from enjoying reasonable profitability. If such a vertically integrated company

succeeds in increasing its market power on the relevant wholesale market even more, or even drives its competitors off the market, it is clear that both an incentive and an opportunity are created for the party in question to once again increase his wholesale price and thus damage competition on downstream markets.

1856. Competition problems can furthermore be in the form of behaviour against such competitors, which constitutes directing service providers and/or end users to their own electronic communications network on the relevant market, or related market (Market 3a) e.g., with popular TV material or advantageous bundles which are not on offer on other networks.

1857. Another example constitutes increasing the cost of switching to customers with agreements that are binding for a long duration.

1858. These are only a few examples of a great number of dangers that can threaten competition because of a market structure as described here above and/or behaviour of the Siminn Group, which is further described here below. The PTA reminds that in order for it to be possible for the PTA to react to competition problems with obligations, it is required that an incentive and opportunity exist for a party with SMP to use his dominance, and not that it is demonstrated that he has done this.

1859. More precisely, a company with SMP on the relative market can endeavour to make it difficult for those companies that operate in competition with such a company on the relevant wholesale market and related wholesale markets, for example on Market 3a and Market 4, or even force them out of the market. If appropriate obligations are not in place, there is a risk that such a company could for example arrange its pricing in the short or medium term, such that other operating companies would find it difficult to compete, so retailers on downstream retail markets would move their business over to the system of the SMP operator. In this way, such an SMP operator could take an abnormal profit at retail level in order to subsidise service on the relevant market and/or related wholesale markets.

1860. It is clear that parties like GR and Tengir do not have the same certainty that service providers will not transfer their business to the Mila network as Mila has certainty that Siminn, which is the country's largest retailer, will not transfer its business en masse to GR and/or Tengir, even though Siminn made an agreement with GR on bitstream access to the GR network in July 2020. Despite the agreement in question, it is clear that by far the largest proportion of Siminn customers will remain on the Mila network throughout the lifetime of the analysis. This means that possible predatory pricing by Mila on the relevant market, which the parties in question find it difficult or impossible to compete with, could create serious competition problems on electronic communications markets. Countervailing buying power of service providers against GR and Tengir is thus much greater than the Siminn countervailing buying power against Mila because of high vertical integration of the Siminn Group.

1861. A company with SMP can furthermore, have both an opportunity and incentive to abuse this position with respect to purchasers by overpricing or discriminating in price. Overpricing is considered to exist if a company is successful in maintaining excessive profits from its operations, i.e., more profit than one could expect on a competitive market. Overpricing could lead to too small a difference between wholesale and retail prices, which damages competition or retail prices that are too high, which damages consumers interests and even prevents some of them from using the service.

1862. The difference in pricing is more likely between its own departments on the one hand and competitors on the other, rather than between differing groups of consumers. Such discrimination is related to vertical integration and the transfer of SMP to a downstream market.

1863. Another competition problem that can arise can be manifested by an electronic communications company that is subject to obligations on a specific wholesale market, e.g., price control, and not on others, attempts to move product offer from a regulated market over to a non-regulated market. This can in some instances be justified on the basis of technological development but can also constitute avoidance of obligations.

1864. Inefficiency in production, is a problem that can arise when there is no effective competition on a market. When a company is not subject to constraint by competitive pressure, this can lead to the company making little effort in many areas of operations such as cost restraint, quality requirements and new investments. These problems have not been conspicuous on Market 3b in this country, but they could arise if competitive pressure decreases, or if obligations are withdrawn, particularly where only the Mila network is on offer.

11.2.5 Further on competition problems related to Market 3b in this country

11.2.5.1 In general on status of the market

1865. In the above sections, the main competition problems that are likely to arise if no obligations were in force on Market 3b have been described. In addition to these problems, one can identify a number of issues in the actual status today that one may categorise as competition problems on Market 3b and related markets, both with respect to market structure and behaviour of market players. Then a number of cases that can be considered competition problems will be described that have arisen in recent years on the relevant wholesale markets and downstream retail markets, some of which have ended with decisions by the PTA or the CA or by the courts.

1866. The market for central access in this country is characterised by considerable oligopoly. Only one company, i.e., Mila, controls bitstream system with close to national coverage. Competitors are not in place everywhere in the country but are each operating in their own operational territory which is bounded variously by the municipality borders in question or the operational territory of utility companies, which can cover several municipalities. GR and Tengir now operate outside the utility service territory in question of their owners, but only in specific regions. Nowhere are there more than two players competing on Market 3b and at many locations outside the most densely populated areas, Mila is the only player on the market. Mila has about 57% market share of Market 3b at a national level and thus has a huge advantage over the next largest party to the market, GR, which has about 40%. Tengir has 2% market share and other parties to the market share just over 1%.

1867. Though market share has decreased since the last analysis was made in 2014, the company had 65% market share, Mila's dominance is still substantial. The company has recently been making great advances in development of fibre-optic networks and bitstream systems over these networks, particularly in urban areas, but also by deploying fibre-optic networks with state aid, and by purchasing or by long-term leasing of fibre-optic networks in country areas. The market is characterised by substantial entry barriers where it has proven rather difficult for new companies to establish themselves, and it took a long time for GR and Tengir and costs were high. While companies like GR and Tengir have for many years widened

their fibre-optic network to households in their operational territories, Mila emphasised upgrading its copper local loops, until the company launched a major effort in deploying its own fibre-optic network to households and companies in 2016. Mila operates bitstream service on Market 3b on all its access networks, both on copper and fibre-optic, and Mila furthermore operates bitstream service on many smaller networks outside the Capital City Area, e.g., on the network of Tengir and on most countryside networks. As the market is very small, with respect to the number of end users compared with most other domestic markets in the EEA, new investments are risky and there are few who have the capability of developing a network in competition with Mila, and furthermore, this takes a very long time. It is therefore likely that the Mila dominance in market share will remain in place, at least for the time being and there are certain indications that this dominance could strengthen even further in the lifetime of the analysis.

1868. Since the last analysis was published in 2014, GR has increased investments in its fibre-optic network and thus in its bitstream system, and its service area now covers a large area in South West Iceland. GR has now 40% share of Market 3b. This development by GR has however not resulted in Siminn and Mila having felt obliged to reduce their retail prices in the GR operational territory. As will be further explained in Section 11.2.5.6 here later (Siminn Group, pricing policy in wholesale and retail), there are indications that the Siminn Group keeps prices low, or sometimes even subsidises on the relevant market and on the wholesale Markets 3a and 3b with high markup and thus profit on the line charge at retail level in connection with household connections and with a certain behaviour in connection with corporate connections, and thus significantly constrains the competitive basis of independent network operators such as GR and Tengir. The PTA does not however have definitive proof of this, as the PTA has not analysed these aspects. It is first and foremost the CA that deals with problems that may be related to predatory pricing, though this is of course one of the issues examined by the PTA as potential competition problems in its market analyses. The PTA must take into account how the Siminn Group can leverage its market power and the fact that the Group is vertically integrated. It is at least clear that the Group is in a position to take advantage of the situation that now pertains on the market and practise the cross-subsidising described above. The CA is now processing to cases that relate to alleged overpricing by Siminn of line charges. GR and Tengir are not vertically integrated electronic communications companies and therefore have no option for answering such behaviour by the Siminn Group.

1869. The Mila market share has decreased from 65% since the last analysis to about 57% at the end of 2020 and the company therefore still has a good lead in share of the market with GR coming next at 40% share. The incentive for the Siminn Group to sell products that are not regulated appears not to have been significant in recent years²³⁹ and in addition to this the Mila pricing of fibre-optic connections on Markets 3a and 3b, both to households and companies, have raised various questions as recounted above and which will be explained in more detail here below. One can however also note that certain types of service are offered by the Siminn Group that are not subject to obligations. Mila has the most widely distributed local loop and

²³⁹ There are various examples of how the Siminn Group has not acceded to requests for access, that the Group considered not to be covered by obligations in force. There one can among other things mention the PTA Decision no. 34/2010 and, in that case,, Mila denied a request for facilities for the NATO fibre-optic, among other things because Mila considered that access not to be covered by obligations in force. PTA Decision no. 28/2011 concerns denial of access to dark fibre in trunk line cables where Mila considered that it was not obliged to do so according to obligations in force. There was a similar situation in Decision no. 38/2012 on Access Option 1 in VDSL with Siminn. One could also mention Decision no. 34/2014 regarding a Snerpa access request to Mila street cabinets and Decision no. 15/2020 on facilities for demarcation boxes in technical spaces. One can furthermore mention denial of access to TV material that has been previously discussed here above.

bitstream system in the country and electronic communications companies are dependent on access to it if they wish to provide services throughout the whole country. Development of the market has thus not given reason to assume otherwise than that the need to maintain obligations on the relevant market is as great as it was after the previous analysis, if not greater, because of the above specified price policy and other behaviour by the Siminn Group.

1870. Vertical integration of the Siminn Group is conducive to impairing effective competition in a number of ways. On related markets, the Siminn Group also has a large market share, and this applies both to Market 3a and to the retail market for Internet connections. In addition to this Siminn has a dominant position on the retail market for bundles, where electronic communications services and TV services are bundled together, and on the retail market for voice telephony service. Markets strength on Market 3b affords the Group various opportunities and devices to protect or even increase its competitive advantage on a related market (Market 3a) and on downstream retail markets, but this can also work in the other direction such that the strong position of the company on retail markets, including for line charges, which in recent years has among other things manifested itself in great success of the Heimilispakkinn bundle, directs customers to the Mila access network bitstream system and has thus slowed down the departures from the Mila network, despite a very substantial increase in deployment of fibre-optic by independent operators and distribution of their bitstream systems since 2014. GR states that it struggled at first on the market for corporate connections (Market 4) despite endeavours to penetrate the market. Various indications that may be correct when GR states that the Mila position is very strong on Market 4, and the PTA has now commenced analysis of the market. The Siminn market share of the retail market has however hardly decreased since 2014 and now stands at just under 50%. Various aspects of the Group's behaviour with respect to vertical integration have been examined in recent years and in addition to this, the PTA and the CA have received reports from competitors of the Group about behaviour that in their opinion, constitutes irregular behaviour, as will be discussed further here below.

11.2.5.2 The impact of the strong Mila position on operations of smaller local networks

1871. Mila is as previously stated, the owner of the largest access network and bitstream system in the country and the only one which reaches nearly all users. The network bitstream system were originally based on copper local loops, but Mila has now launched rapid and extensive fibre-optic rollout and the company's fibre-optic local loops are increasing steadily a number, being 77,000 about 2020 and continued vigorous development is planned by the company in the coming years. Apart from bitstream service on its own copper and fibre-optic local loops, Mila furthermore operates bitstream service on the networks of Tengir and of most countryside networks.

1872. During the last years there has been development of local fibre-optic networks at many locations in the countryside. This development is broadly speaking based on two scenarios, on the one hand there are companies owned by utility companies, entirely or partly, that implement the projects, such as GR and Tengir, or they are state funded networks in sparsely populated communities. In addition to this, municipalities and/or local inhabitants have in some instances deployed a fibre-optic network without state aid, such as Snerpa in the West Fjords and Austurljós at Egilsstaðir and surrounding area in East Iceland.

1873. GR operates its own network mostly independent of Mila, but it is worthy of note that many of the smaller networks are not in direct competition with Mila but rather cooperating with the company and in a large number of cases, Mila has purchased their networks or leased

long-term. In addition to this Mila has deployed fibre-optic networks in rural areas to a significant degree, with state aid. It seems to prove difficult for the owners of the smaller networks to operate them and their active equipment, which is where Mila has entered in a strong position. Mila is responsible for the operation of GPON connections on over 28 such networks. Mila has deployed, acquired ownership or long-term lease on about 23 networks in addition. This is a total of 51 local networks²⁴⁰. This has not been an option available to GR because of a lack of its own trunk line connections outside the south-west part of the country and according to the company because of disadvantageous terms offered by Mila for such trunk line connections. Tengir has purchased the Skútustaðahreppur network, in addition to managing and operating bitstream service on the small fibre-optic networks owned by Tjörneshreppur and Fljótsdalshreppur, where connections on those networks are only a few tens.

1874. It could be that is not realistic for owners of the smallest networks to take part in their operation and to invest in active equipment and other necessities to provide retailers and thus consumers with the necessary service. It could thus be that in most instances there are no possible operators available other than Mila, among other things because Mila operates the country's only trunk line system with national coverage. This situation demonstrates the strong Mila position as the only company in the country that operates access and trunk line networks with close to national coverage. This development is also conducive to strengthening Mila's position on the market and results in new investments in smaller networks, not leading to increased competition on the market to any significant extent, and in addition to this these are few connections of the total number of connections in the country.

11.2.5.3 Reluctance of the Siminn Group to provide specific types of access

1875. As stated here above, a vertically integrated company with SMP on a wholesale market can have a tendency to try and transfer this power to a downstream market by refusing access to a specific wholesale service to competitors. Instances have arisen where access is refused or delayed or made difficult in some manner despite obligations on access being in force.

1876. In this connection one can for example mention that it proved extremely difficult for some time for companies to be granted full access to the Mila VDSL system (which was then in fact owned and operated by Siminn), during the years 2010-2012. Vodafone, for example repeatedly requested access to VDSL with multicast on Access Option 1 over a period of months, but Mila had only offered Internet transmission on Access Option 3 in VDSL. It needed a PTA decision for the Group to desist from such behaviour, see PTA Decision no. 38/2012. With such access Vodafone could offer its customers access to the company's IPTV system through Mila networks. More specifically, Mila for some time did not offer access to multicast for parties other than Siminn, nor access to Access Option 1 except with major and detailed conditions, among other things with respect to a projection on the number of customers at each location.

1877. In addition to this, companies have been unsuccessful in acquiring Siminn IPTV service over their own bitstream system and it is very important for companies to be able to offer IPTV service on their network, as it is extremely popular among consumers in Iceland. The importance of IPTV distribution is high on the domestic electronic communications market. GR has repeatedly offered Siminn bitstream access that Siminn would use for its IPTV service.

²⁴⁰ See further in sub-paragraph 87 in Section 6.3 here above, where there is discussion on deployment of networks, deployment plans and network topology with respect to geographical analysis.

It was then not until July 2020, subsequent to the preliminary draft being submitted for national consultation, that Siminn finally made an agreement with GR on such access. It is not until late August 2021 that Siminn began to provide service on the GR fibre-optic network, but the intention was initially that it would be during the first half of the year. Despite the agreement in question, it is clear that by far the largest proportion of Siminn customers will remain on the Mila network throughout the lifetime of the analysis. Vodafone has also been in dispute with Siminn on access to material owned by Siminn for distribution on the Vodafone IPTV system since the autumn of 2015 but has made no progress. At the same time, Siminn has strongly emphasised the bundling of electronic communications and TV service (Heimilispakkinn), with good results from the time the policy was adopted in the autumn of 2015.

1878. Access to the Mila VDSL system is still important in many parts of the country, as the reality is that in the areas where Mila has developed its VDSL service and where another network based on fibre-optic is not in place, there is no other option for very fast broadband access. Other bitstream providers that used to have their own ADSL system in the area therefore lost a large number of the customers in bitstream service in a few months after VDSL was rolled out in the area in question. Such parties found it was not possible to upgrade their systems from ADSL to VDSL and compete with Mila in provision of bitstream service and then to move their retail business over to wholesale purchase of bitstream on Mila VDSL systems and have thus moved down the investment ladder.

1879. With respect to other disputes on access, in connection with Mila VDSL rollout one can mention the PTA Decision no. 34/2014 where the PTA considered that Mila had not had the right to deny Snerpa certain specific inter-cabinet connections in Holtahverfi in Ísafjörður and Mila was considered to have breached the non-discrimination obligation by not providing Snerpa with adequate information and instructions with regards to VDSL rollout in the district. The PTA considered the Snerpa access requirements in some instances not to be fair and normal but instructed Mila to resolve that part of the access needs by offering VULA access. From the time that the Mila reference offer was revised with respect to VULA access, no player has seen an advantage in using it, as the pricing is such that economy of scale needs to be so high for it to be realistic and there are few if any such players in this country with the exception of Siminn.

11.2.5.4 Mila behaviour vis-à-vis competitors on Market 3b that does not concern pricing

1880. The Siminn Group has in a number of instances, demonstrated behaviour but can in the opinion of the company's competitors be conducive to hindering competitors from getting a foothold on Market 3b, and on the related Market 3a. In Section 11.2.5.6 here below there will be a description of the behaviour of the Siminn Group, that is manifested in the Group's pricing policy. Here below, and in the next section there will be explanations of the examples that do not concern prices.

1881. An example of that which relates to the development of a fibre-optic network in Húsavík during the years 2019 and 2020. Tengir²⁴¹ and Mila were granted permission by the

²⁴¹ Tengir has a direct commercial connection with end users with regards to, connections to the company's fibre-optic system. The company does, however, not provide any retail service like Internet service, TV service or voice telephony service. Tengir has a sales representative that will contact customers (consumers and companies) and sells them fibre-optic connections. Subsequently an order is sent to the service provider to the effect that the party in question has ordered fibre-optic from Tengir for his electronic communications service, which is done either by Tengir or the customer after having discussed with a Tengir employee. Then the service provider can also send an order directly to Tengir in cooperation with the customer, without Tengir being involved. Service providers

Competition Authority²⁴² to cooperate on deploying fibre-optic in Húsavík. In the application from the companies to the Competition Authority it was among other things stated that the basis for the cooperation was among other things to speed up user access to fibre-optic in Húsavík, increase customer choice, minimise damage from civil works and inconvenience for inhabitants and to thus support increased competition on the electronic communications market for the benefit of consumers. Furthermore, to provide consumers with a fair share in the advantages gained from the positive economic impact of the cooperation. It was finally stated that the cooperation should not give the parties the opportunity to prevent competition between them as each party would, as before, operate his own independent fibre-optic network and sell service providers electronic communications services in wholesale. The Competition Authority gave its authorisation for the cooperation in question and made no comments on the company's assessment of the impact of the agreement, as it was limited to using the same civil works to deploy to fibre-optic networks that would be technically separated and independent and thus did not damage the basis for competition for the customers in question. It would also be assured that the cooperation was limited to this and did not constitute any collusion on other aspects, such as price or service to customers.

1882. In the light of the above, two fibre-optic access networks were deployed, one owned by Mila and the other owned by Tengir, but the civil works were shared. After Tengir began marketing its fibre-optic connections in the town, it came to light that Mila refused to connect its bitstream equipment with the Tengir fibre-optic as had been the custom in the Tengir operating territory where there are fibre-optic networks owned by both parties, as is the case in Akureyri, Dalvík and Hrafnagil, this means that customers of Siminn, Nova and Hringdu who only used Mila bitstream service, cannot purchase a fibre-optic connection from Tengir. At the same time, Siminn did not accept a request from Tengir that the company connect to Tengir bitstream equipment in the area, as the company does on the corporate market. Siminn has a very large market share of the retail market for Internet connections in this area, as elsewhere, and this means that the use of the Tengir network will not be as the company expected when it embarked on the project. Siminn says that it is preparing to make an agreement with Tengir on bitstream access, but this has not yet happened despite the fact that Tengir has long sought such business with Siminn. Elsewhere in North Iceland, where the Tengir network is operating, Mila has up to this point in time set up bitstream equipment on the Tengir fibre-optic as described above.

1883. Before Tengir started the above specified cooperation with Mila, the company conducted an assessment of the marketing basis for the project. Replies were requested from both Mila and Siminn to find out whether customers on Mila GPON would have the option of Tengir fibre-optic in Húsavík.²⁴³ In the Mila reply, it was stated that no decision had been made in this connection, but that Mila had generally chosen to purchase only access to fibre-optic owned by other parties when the company did not have its own fibre-optic system. Mila could not at this stage provide an answer on future business or service to customers. Should the situation arise where a Mila customer (service provider) asked to have bitstream service through a local loop of another party, then this would be considered. According to the representative of Tengir, it was said at a meeting with Mila prior to the civil works that the same arrangement would be followed in Húsavík as was practised elsewhere in the Tengir operational territory where both

have information on where the Tengir fibre-optic is located and can contact customers and offer them a fibre-optic connection with Tengir. Regardless of which way is chosen, the customer pays Tengir directly for the line charge and pays the service provider for other service through the connection.

²⁴² See CA Decision no. 26/2019 from 8 August 2019.

²⁴³ It is worthy of note that the service providers. Siminn, Nova and Hringdu use Mila GPON in this area.

companies operated fibre-optic. In an email from a Tengir representative to the Siminn product manager, it was stated that preparation was taking place for deploying fibre-optic at Húsavík, where fibre-optic from both Mila and Tengir would be on offer, and the representative wanted to check with Siminn whether the company would definitely offer its service through the Tengir local loop network at that location. The Siminn product manager answered in the affirmative and said that Siminn would of course take part in the development in Húsavík. Subsequent to the above specified communications between Tengir and Mila, Tengir had decided to participate in the project in question.

1884. Tengir had subsequently made a long-term agreement on hosting for its facilities and made a 12-month binding agreement with customers that were receiving service from Siminn and other service providers which was such that customers that commit themselves to paying monthly charge for fibre-optic for 12 months would receive in-house work at a discount. It soon came to light that requests from the service providers in question were not processed by Mila. When an explanation was requested from Mila, it transpired that the company planned to only use its own fibre-optic in Húsavík, as Mila considered that that served its interests best. Mila made its decisions independent of others, including Siminn, and did not know that company's intentions.

1885. In the light of the above, in the opinion of Tengir, this had represented significant failed assumptions for the above specified joint investment and the company needed to, among other things, invalidate the above specified binding agreement with the customers who were receiving service from Siminn and from other service providers, but the in-house work was nevertheless conducted with attendant losses, as the customers could not use the Tengir fibre-optic subsequent to this. Use of the Tengir fibre-optic system in Húsavík had been much less than the company had planned for the above reasons, while the company had invested significant funds in the project. Mila had subsequently not replied to Tengir questions about the matter and the answers provided by Siminn were to the effect that the company's business system did not allow for connection to the Tengir bitstream system on the residential market in the same manner as on the corporate market. It would take a long time to upgrade the system, but it might be possible to look at that later.

1886. In the opinion of the Tengir representative, Mila had prevented competition in Húsavík on the wholesale markets in question, quite contrary to the intentions in the joint investment in question and to the Competition Authority decision, which authorised the cooperation in question. The current situation in Húsavík is that neither consumers nor service providers that sell among other things, Internet service, can in fact choose whether the Tengir fibre-optic is used, or that of Mila.

1887. In Mila comments on the preliminary draft, which is discussed in more detail in Section 10.2.5 in Appendix B, the company stated that the case had been presented from the viewpoint of Tengir and that the PTA had made no attempt to get the Mila opinion on the "insinuations", as Mila chose to call the above specified Tengir complaint. Mila said that the fact was that it cost the Mila bitstream system ISK 312 per month to have access to the Tengir fibre-optic outside Akureyri (ISK 212 in Akureyri). This charge was not collected by Tengir for its own bitstream users or for internal use. Mila thus considered there to be a normal commercial viewpoint behind this decision, i.e., to minimise the cost of providing bitstream service. Mila then accused Tengir of dubious business practices, which are further explained in the above specified Section in Appendix B.

1888. Tengir has drawn attention to more issues that relate to Mila behaviour that Tengir states that make things difficult for the company in competition with Mila. Mila had for example announced at the end of February 2020, that an additional charge would be imposed on GPON connections that go through the Tengir network. This could in the opinion of Tengir direct service providers from business with Tengir, as they will need to pay an additional charge for each user connected through the Tengir fibre-optic network that used Mila endpoint equipment. This could hinder competition on the relevant market and on downstream markets. Mila referred to the fact that the additional charge in question was the same as the above specified additional charge as the Mila access system needed to pay for access to the Tengir fibre-optic network. This additional charge was a large part of Mila bitstream charge in the area and the company could no longer absorb this.

1889. Tengir believes that requests for a connection with customers of Siminn and Hringdu that use endpoint equipment from Mila to the Tengir fibre-optic network are not processed reasonably and that work requests are delayed and/or lost. Furthermore, connection to the Mila fibre-optic local loop is a default selection in the service requests system of Siminn and Mila, even where a request for connection originates from a Tengir sales representative. There have been instances where a customer moves to a new house, i.e., from a house where there is only fibre-optic from Tengir available to the home where there is fibre-optic from both Tengir and Mila and the customer in question is automatically connected to the Mila fibre-optic network, despite not having asked for this.

1890. Then, during recent years, Mila had been reducing its business with Tengir and its contractors for on-site service, according to Tengir. Mila had decided to make an agreement with its own contractors in urban areas in the Tengir operating territory but continued to use Tengir contractors in the countryside. This requires two visits to activate the Tengir fibre-optic. It increases the level of complexity, takes more time and increases inconvenience for Tengir customers. This does not happen when Mila uses its own fibre-optic. Siminn customers thus suffer much less inconvenience if they use the Mila fibre-optic. As a countermeasure to this, Tengir has taken on additional costs to complete set up for customers to guarantee them good service. Siminn customers on the Tengir fibre-optic have increasingly been receiving invoices for setup of equipment. Cases regularly occurred where customers received an invoice for an upgrade which should have been free and are dissatisfied with the Tengir sales representative as a result. This problem arises when Siminn customers had been moved from Mila copper to Mila fibre-optic. Mila said there was nothing unusual with Mila deciding to switch partner when it was among other things, more economic.

1891. As has been previously stated here above in the discussion on the Húsavík case, it was stated in emails from Mila to Tengir, that the company generally purchased only access to fibre-optic of other parties at locations where Mila had no fibre-optic. This is however not the case in the Tengir operating territory, except in Húsavík. In the past months, Tengir has regularly requested that Mila offer bitstream service on the Tengir fibre-optic network at Húsavík, among other things because of pressure from Siminn customers in that town, but Mila's representatives have taken the position that they intend to only offer bitstream service over their own fibre-optic at Húsavík, as at other locations where the company has fibre-optic. Mila considers that to be a normal arrangement. Mila had however not informed Tengir formally that the company would move Tengir customers unilaterally from the Tengir network over to the Mila fibre-optic network where both networks were available.

1892. Tengir has pointed out that such a development could have serious consequences for competition in these areas, but considers however, that Mila is not authorised to cut the business

connection between Tengir and the company's customers. Tengir furthermore pointed out the risks that would result if Mila should refuse to connect a new customer through the Tengir fibre-optic network at more locations than at Húsavík where Mila has its own fibre-optic network. Such behaviour would prevent Tengir customers from having access to service providers that only used the Mila bitstream system, including Siminn, which is by far the largest retailer in the country, and which is in a very strong position in the Tengir operational territory. This would mean that these service providers would only have the option of offering the Tengir fibre-optic, where Mila did not have its own fibre-optic network, and in other areas, customers would be moved unilaterally from the Tengir fibre-optic to the Mila fibre-optic. With increased fibre-optic deployment by Mila in the Tengir operational territory, such a policy would have a significant impact on the operational grounds for Tengir, as a large part of Tengir residential customers today had services from Siminn.

1893. From the above it is clear that the behaviour of the Siminn Group causes Tengir various inconveniences and problems that must be considered to be competition problems on the relevant and related markets. In this instance, the Siminn Group is leveraging its vertical integration. It is clear that Siminn is by far the largest retailer in the country on the related retail market and it seems to be the policy of the Group not to offer service over the Tengir fibre-optic network where Mila offers its own fibre-optic connections, and even VDSL connections unless the customer in question requests a fibre-optic connection instead of VDSL and such a connection is not available from Mila. This situation has also applied up to this point in time with respect to GR though in a rather different manner as discussed here below.

1894. During recent years, Snerpa has deployed about 1000 fibre-optic connections in the West Fjords. Mila has not made an agreement with that company on access to this fibre-optic, despite the fact that Mila has a limited supply of fibre-optic in the area. Negotiations have been ongoing since the beginning of 2020, but progress has stranded or been delayed at Mila. Nor does seem in provide its electronic communications service through the Snerpa network. Earlier in this analysis, there was a short explanation of the dispute between Snerpa and Mila, see PTA Decision no. 34/2014, where the conclusion was that Mila had breached the obligations in the prior PTA market analysis of the relevant wholesale markets in connection with the Mila conversion of its copper network in Ísafjarðarbær from ADSL to VDSL. According to Snerpa, this dispute led to the company commencing its own fibre-optic rollout.

1895. Austurljós at Egilsstaðir in East Iceland is a small local electronic communications network that has commenced fibre-optic deployment at Egilsstaðir and surrounding areas. The company has deployed about 200-300 connections and plans to expand its network more broadly in East Iceland in step with its financial capacity and circumstances, and according to demand. Mila was less than enthusiastic with regards to a request from Austurljós that it operate its bitstream system on the Austurljós network, and the latter company therefore decided to deploy its own bitstream system on its own fibre-optic network. Nor does Siminn provide its electronic communications service through the Austurljós network. Mila has now announced major plans for deployment of fibre-optic at Egilsstaðir in 2021, but the PTA has no information to the effect that this is planned for other urban kernels in East Iceland, where Austurljós has not commenced deployment.

1896. GR is a Mila competitor in the south-west part of the country and various disputes have arisen between the companies and in reality, between GR and the Siminn Group. Siminn has for example never offered its services through the GR fibre-optic network, despite the fact that GR has often requested this over a period of years and has made various offers to Siminn to join its network. In July 2020, shortly after the preliminary draft was submitted for national

consultation, there was however a sudden change in this matter when Siminn and GR made an agreement on Siminn bitstream access to the GR fibre-optic network. The agreement allowed for Siminn commencing the provision of its service over the GR network in the first half of 2021, but service began in late august 2021. The PTA considers it rather unusual that Siminn should require such a long time for software development to connect to the GR network. Given this agreement, the PTA considers it clear that the vast majority of Siminn customers will remain on the Mila network, and that a large part of those Siminn customers that will be on the GR network will doubtless come from other service providers that have been on the GR network and are thus not moving from Mila.

1897. The behaviour of the Siminn Group, with respect to refusal of access to TV service has had the effect of directing customers from the GR network and over to the Mila network and to retaining customers on the Mila network, see PTA Decision no. 10/2018, which will be dealt with in more detail in the next section. In this decision, there is a detailed description of Siminn behaviour in this respect, and it was among other things, the conclusion of the PTA that Siminn had at no point in time shown genuine willingness to come to an agreement with GR during the years that the negotiations in question took place.

1898. There have also been disputes on demarcation boxes, and in disputes that have been referred to the PTA in this regard, the conclusion has variously been that the configuration by GR or the Mila configuration had not been according to the rules.

1899. Sharing of civil works for ducts and cable routes has not always been without problems and in most instances, GR and Tengir have deployed their own network without access to the Mila ducts and civil works, though there are examples of joint civil works of these companies. According to the PTA Decision no. 21/2014, an obligation was imposed on Mila to notify civil works with six months' notice for the purpose of making sharing possible. The PTA came to the conclusion in Decision no. 5/2018 that Mila had breached the obligation by not advertising part of its civil works in the Setbergshverfi district in Hafnarfjörður, and that with respect to that part that was advertised, the information given was not sufficiently clear. It was also deemed that Mila had breached the provisions of the access obligation and non-discrimination obligation by refusing GR access to its local loop ducts in a number of streets and by not respecting non-discrimination between related and unrelated parties. In the decision by the Appellate Committee for Electronic Communications and Postal Affairs number 2/2018, the PTA conclusion was confirmed with respect to the part of the civil works that was not advertised but the PTA decision with respect to the provision of information on access to ducts was deemed void on the grounds that the obligation that had been imposed with Decision 21/2014 had not been sufficiently clear in this regard. The PTA considers that this conclusion gives reason to clarify the content of the duty to inform in more detail when the decision with respect to obligations is taken in the analysis that is here under discussion.

1900. The PTA considers that the examples given in this section show unequivocally that Mila, and in fact the Siminn Group, has throughout the years employed various methods to make competition difficult for Mila's competitors at wholesale level, despite obligations on Mila. The PTA does not expect otherwise than that such behaviour will continue throughout the lifetime of the analysis and that there is therefore a clear necessity for appropriate obligations on the Group.

11.2.5.5 Cases related to TV service and other retail service

1901. Siminn introduced extensive changes to its TV service on 1 October 2015. The TV station SkjárEinn, which later became “Sjónvarp Símans”, was made subscription-free without non-linear visual content accompanying the linear program. At the same time, Siminn launched the media library Sjónvarp Símans Premium which became a subscription access service. Siminn also offers its subscribers to view special previews of specific popular series and other visual content, which is subsequently broadcast on the linear TV channel. At the same time, Siminn introduced changes to its electronic communications services by offering the Heimilispakkinn bundle, where subscribers gain access to the home telephone, Internet, TV distribution through the company’s IPTV system and access to visual content, among other things the above specified Sjónvarp Símans Premium.

1902. Sjónvarp Símans Premium was only made accessible with Siminn and then with underlying electronic communication networks of the subsidiary Mila, and on the electronic communications networks of the smaller local electronic communications companies in the countryside. The content provider was on the other hand not made accessible to the GR electronic communications network that has operated country’s largest fibre-optic network.

1903. The Siminn Group has thus in recent years acquired rights to popular visual content which is marketed under the name Sjónvarp Símans Premium. The most recent addition to this service is English football which Siminn acquired from and including the competition season 2019/2020 for three years. English football is offered in the media content provider as a linear program item. This popular TV content is among other things included in the Siminn Heimilispakki, which, as previously stated, is extremely popular with consumers and has doubtless attracted customers of other electronic communications companies, and the large majority of Siminn customers purchase the TV service in question through that bundle. Popular TV material can be used to attract consumers to a specific electronic communications network, or to keep them there, if it is not offered on other networks. Siminn has been deemed to have directed consumers to the Mila electronic communications network by refusing to provide other electronic communications companies with access to the material.

1904. Competitors of the Siminn Group, including GR, have not been successful in acquiring access to the Siminn IPTV system. Siminn has only offered electronic communications companies’ resale of IPTV service through Siminn Group/Mila systems. On the other hand, Siminn has categorically refused to deliver its TV signal to other electronic communications companies on other electronic communications networks during past years. In July 2020, there was a change of policy when Siminn made an agreement with GR as described above. It is expected that Siminn will begin offering its service on the GR network in the second half of 2021. In October 2015, Siminn stopped distributing its visual content on networks and IPTV systems other than its own, but up to that time Vodafone had been able to offer Siminn TV content on its own IPTV system, but Siminn terminated that agreement in the preparation for the above specified changes in 2015. Sjónvarp Símans Premium was launched as previously stated, and Siminn did not provide access to that through the GR network or through the Vodafone IPTV system and nor to time shift until Siminn began to offer TV service through an OTT solution in August 2018. Nor has Nova been successful in coming to an agreement on access to Sjónvarp Símans Premium to offer its OTT TV distribution solution.

1905. The PTA took a case related to distribution of Siminn TV content for processing to a certain extent and came to the conclusion in the Administration’s Decision no. 10/2018 that Siminn had breached the provisions of paragraph 5 of article 45 of the Media Act by only

offering Sjónnvarp Símans Premium on the Siminn IPTV system, where customers of electronic communications companies operating on the GR network could not access the visual content. The breach was deemed to have taken place from 1 October 2015 until the Decision was made on 2 July 2018.

1906. Siminn appealed the above specified decision to the courts. With the judgement of the District Court of Reykjavík from 1 July 2020, it was confirmed that Siminn had breached the provisions in question of the Media Act. The grounds for the PTA decision with respect to the impact on GR were confirmed. It was stated that there was no question that the Siminn decision on a changed arrangement for the company's TV service on 1 October 2015 had had the effect that those who used the GR fibre-optic network as an underlying electronic communications network for subscription TV, were unable to access content from the Siminn content provider in a non-linear manner without this transit of telecommunications going through the Mila electronic communications network. This decision must have been conducive to increasing transmissions through the Mila electronic communications network. In the opinion of the court, the Siminn demand for passive access to the GR fibre-optic network had been incompatible with the obligation borne by Siminn, as a media provider, to refrain from directing business to a related electronic communications company, i.e., Mila, and furthermore at odds with the clear objective of the Media Act to the effect that customer access to TV content should be independent of underlying electronic communications networks. The Siminn breach was unequivocal and was still taking place when the PTA decision was made in July 2018, as Siminn had then not yet made an agreement on fair and reasonable access to the GR electronic communications network, such that that company could disseminate content from the Siminn content provider in a comparable manner and on comparable terms to Mila.

1907. On the other hand, the judge did not accept that Siminn had committed a breach against Vodafone, as the PTA had deemed in the appealed decision, by not coming to an agreement with Vodafone to the effect that the company could disseminate the Siminn content in question over its own IPTV system, as was actually the case until October 2015, or to ensure in another manner that customers of Siminn content provider could purchase access to the visual content in question in another manner than by purchasing electronic communications service from Siminn, for example, with an adequate OTT solution. The judge came to the conclusion that the objective of the above specified provision was not to establish an indirect obligation for one content provider to how another content provider non-linear distribution and sale of material to which the former content provider had acquired rights. The judge also considered that the IPTV system in question was not an independent electronic communications network but rather a system that needed to be supported by some such underlying electronic communications network. Then it is stated in judgement:

“Though one may agree that the operation of an IPTV system for the purpose of distributing visual content is strictly speaking deemed to be electronic communications service, it is nevertheless clear that the operation of such a system is an inseparable part of the operations of the content provider that the customer receives access to by purchasing a subscription and connecting to the system. The system in question serves in reality only the purpose of enabling customer access to the content provider. One must furthermore take into account that the electronic communications service provided for the customer with the IPTV system of a company is insignificant when compared with the media service that subscription to or purchase of access to a content provider has as its main objective.”

1908. The judge then reduced the fine that the PTA had imposed on Siminn from ISK 9,000,000 to ISK 7,000,000. The PTA was not satisfied with this interpretation of the court of the concepts

“electronic communications network” and “electronic communications service”, and nor that the PTA conclusion had constituted a duty for Siminn to make an agreement with Vodafone and appealed the judgement to the National Court. Siminn and Vodafone did so also. The conclusion of the National Court can be expected in the spring of 2021.

1909. The PTA considers it clear that the Siminn behaviour in question, which took place from October 2015 until August 2018, when Siminn began to offer the non-linear visual content in question over an OTT solution, had had a negative impact on GR operations in competition with Mila and on the operations of Vodafone and of other service providers who were competing with Siminn. Siminn has for example succeeded in maintaining its high market share in recent years, which must be considered a good result, not least in the light of the increased distribution of the GR fibre-optic network, over which Siminn has not yet offered its service. At the same time, Vodafone lost substantial market share. Although active GR connections have increased during the period in question, it is the assessment of the PTA that this is first and foremost attributable to substantial and costly investments by GR in fibre-optic deployment over a period of many years. The PTA has for example data which shows [...].

1910. Siminn reacted to the above referenced PTA Decision no. 10/2018 by offering Sjónnvarp Símans Premium with what is called the OTT solution in August 2018. The PTA examined this solution and came to the conclusion that the OTT solution was inadequate, in Decision no. 27/2000 in November 2019, as the customer had only been able to access the TV service by renting a set-top box from the electronic communications arm of Siminn for ISK 2200 per month, in addition to the subscription for Sjónnvarp Símans Premium. Siminn owned and controlled these set-top boxes which are necessary to be able to use the service independent of network. It was not possible to use devices or equipment, other than the Siminn set-top box. This topology meant that the set-top box connected to Siminn, as the distributor of the TV content, i.e. the Siminn electronic communications section and not the media section of the company. The pricing and the presentation of the service was, furthermore, such that Siminn was in fact still directing customers of its media provider to a related electronic communications company. The PTA had considered that the Siminn solution had not proven to be entirely “Over the Top” by making a specific set-top box mandatory for the service and thus, connecting with the electronic communications part of Siminn, i.e., the Siminn IPTV distribution service. The PTA also came to the conclusion that the Siminn breach had ceased on 2 October 2019, as from and including that point in time it was not possible to consider that it was only the fault of Siminn that the situation in question still existed as Vodafone had then been offered access to the TV content in question but had rejected the offer.

1911. With the ruling of the Appellate Committee for Electronic Communications and Postal Affairs number 27/2019, dated 6 November 2020, the Committee rescinded the above specified PTA Decision no. 27/2019, as the Committee deemed that investigation of specific aspects of the case was lacking, and that arguments were lacking. On 16 March 2021, Vodafone, PTA, Siminn, Mila, Nova and GR brought a case to the Reykjavík District Court to overturn the ruling in question. Vodafone also made the claim that the conclusion should be that Siminn had not ceased to commit the alleged breach from and including 2 October 2019 and that it is effectively still being committed. Nova has also informed the PTA of its dissatisfaction with the ruling in question and there is therefore also a likelihood that Nova will also refer the case to the courts.

1912. Regardless of what the conclusion in the cases will be, as they concern, as previously stated, interpretation of a provision in the Media Act, the PTA considers it clear that the above referenced behaviour of the Siminn Group has caused competition problems on the market here

under discussion, and on downstream markets, and those competition problems still pertain, though to a lesser degree, for reasons explained here below.

1913. As previously stated, Siminn began to offer the above specified OTT solution for distribution of its visual content in August 2018, including Sjónvarp Símans Premium and from autumn 2019 also English football. The uptake of this service has been rather little and in fact only a small fraction of uptake in the company's IPTV system. According to the newest information from Siminn, with reference to end of year 2020, the number of customers of the company in the OTT solution in question was [...], while at the same time, Siminn customers using Siminn TV service over the company's IPTV system numbered 56,824, where the large majority received access through a subscription to the Heimilispakkinn. The OTT solution thus appeared not to be particularly attractive to consumers. The Appellate Committee rescinded, as stated above, the PTA Decision no. 27/2019 on a technicality, and in that decision, the PTA had come to the conclusion that Siminn had breached the above specified provisions of the Media Act until 1 October 2019. There is thus no decision in force that states that Siminn committed a breach after August 2018.

1914. According to Siminn, the OTT solution is the same as the IPTV solution, i.e., basic subscription and then the possibility of adding other subscriptions, such as Sjónvarp Símans Premium, SiminnSport (English football), Siminn Heimur (retransmission of foreign stations), VOD, timeshift, Vodafone subscriptions etc. On 9 February 2021, Siminn had informed the PTA that the company had been testing the AndroidTV app during recent months and in the beginning of February 2021 and experimental app had been included in AppleTV, which was in the testing phase. It was still the case that it was necessary to pair the apps with a set-top box from Siminn (IPTV or OTT). The next step in development was to design the service, such that it was not necessary to pair the apps with Siminn set-top boxes, and work had been carried out on this development during the past 1-2 years. There were expectations that they would be ready in the spring of 2021. In September 2021 such apps are not available.

1915. In the opinion of the PTA, the above specified innovation in Siminn TV service, and the agreement with GR from July 2020, are likely to significantly mitigate the damaging impact on the electronic communications market, that the arrangement of Siminn TV service has caused since October 2015. This problem was partly resolved with the above specified Siminn OTT solution in August 2018 and with the Siminn wholesale agreement with other electronic communications companies about English football in the summer of 2019, and even more if the Siminn plans were to be realised for offering an OTT solution without pairing with Siminn set-top boxes. The above specified development does not however change the fact that the Siminn Heimilispakki, where the company's TV service is included, is a very popular bundle that other service providers appear to have difficulties in competing with. The extent to which the damaging impact on competition in this connection will be mitigated very much depends on when an OTT solution can be provided that will be independent of Siminn set-top boxes and on whether and to what extent, Siminn will use access to the GR network, pursuant to the agreement on this matter, and as stated before, Siminn had not started to apply that agreement in the end March 2021, 8 months after it was signed.

1916. The Competition Authority has recently received various complaints with respect to the behaviour of the Siminn Group, in connection with retail service, and they are dealt with in Section 11.2.6 here below. Initially, Siminn adamantly refused to come to an agreement on the sale of English football in wholesale in the spring of 2019 and into the summer but desisted from that behaviour after the Competition Authority published a preliminary assessment of the case. Agreements were made with Vodafone and Nova on wholesale of the material, but

Vodafone has complained to the Competition Authority about margin squeeze that the company considers to be manifested in high wholesale price.

1917. With the CA Decision no. 25/2020, dated 28 May of the same year, the Administration came among other things to the conclusion that Siminn had breached two further specified provisions of the above specified settlement between the Siminn Group and the CA and one provision that relates to a ban on specific bundling in another settlement that the Siminn Group made with the CA on 15 April 2015, in connection with English football and Siminn Heimilispakki, and the CA is furthermore processing more complaints that relate to alleged breaches of the above specified settlement.

1918. With its Ruling no. 1/2020, dated 13 January 2021, the Appellate Committee for Competition confirmed that Siminn had breached article 3 of the settlement from 15 April 2015 (the TV Settlement) which banned specific bundling. The Committee confirmed with its ruling that Siminn had, with its selling and marketing of the TV channel. Siminn Sport (English football) through the Siminn Heimilispakkinn, breached the conditions of the article in question in that settlement. In the opinion of the Committee, Siminn had leveraged its position to cause its customers in one type of service to buy or receive Siminn service of another type, for a price or on business terms that could be equated to a condition to purchase these service types together. With marketing which made the TV station Siminn Sport part of the Heimilispakkinn through the content provider Sjónvarp Símans Premium, while at the same time increasing the Heimilispakkinn price insignificantly, one must deem that Siminn had specifically endeavoured to get that group of its customers that had already purchased electronic communications and TV service from Siminn through the above specified service option, to also purchase access to the TV channel in the same manner. The Committee deemed the Siminn breach to be serious, and that Siminn's conduct had been contrary to the provisions of the settlement that the Siminn Group had itself undertaken to respect in its operations. In this respect one had to keep in mind that it was important to comply with the conditions of settlements and to endeavour that its objectives be achieved. Siminn could not have been unaware of the fact that the company's selling and marketing of the TV channel, Siminn Sport could be in breach of provisions of the settlement.

1919. As stated above, the CA deemed in its above specified decision that Siminn had also breached to more specific provisions in the settlement that the Siminn Group made with the CA in 2013 and which was revised in 2015. More specifically, article 19, which prescribes that Siminn and Mila shall ensure that varying service elements shall be sufficiently separated in operations of the companies, also with respect to price, and article 20, which prescribes, among other things that Siminn shall continue to ensure that company agreements with customers on the residential market shall not include a longer binding duration than one month and that if a customer decides to move his custom to another electronic communications company then Siminn and Mila shall ensure that the transfer of service does not have any impact on other terms that the customer has with Siminn. The Appellate Committee agreed with the CA that there were various indications that Siminn had also breached the provisions in question, but nevertheless referred them back for new processing by the CA. The Committee then referred, among other things to the fact that the purpose of the provisions was among other things to prevent Siminn and Mila from using bundling on those markets where they had a dominant position in each instance. This should be understood in such a way that an assessment needed to be in place of whether the company in question had a dominant position on the markets in question. It would not be deemed that there was an adequate investigation by the CA in place in the case of the defined markets in the case and nor whether Siminn had a dominant position

in those markets. One must therefore conclude that this part of the case was not fully clarified. The Appellate Committee reduced the fine that the PTA had imposed on Siminn from ISK 500,000,000 to ISK 200,000,000.

1920. In addition to this, a number of companies have complained to the CA about free months and 10-fold data volume in mobile phones in the Siminn promotion and included services of Heimilispakki.

1921. It is likely that with the above specified conduct, i.e., limitation of access to TV service, and the amalgamation of various retail offers with wholesale service of the Siminn Group, that the Group had been exercising its market power to hinder competition, among other things on the wholesale Market 3a, and continues to some extent to do so.

1922. “Real” competition problems, in addition to problems that have not been decided by the PTA, the CA or the courts, are problems that have arisen and have been solved partly or in full of interventions by the PTA and/or the CA. Although problems may no longer be in place after such an intervention, or if they have diminished, they indicate that the Siminn Group has been found to conduct itself in recent years, such that real competition problems have been created. It is not inconceivable that another kind of behaviour of the Group that creates competition problems could arise in the future, if the possibility for this is in place. The PTA reiterates that competition problems do not have to be real or in progress for it to be authorised to impose appropriate obligations on a party with significant market power. It suffices that the possibility is in place. The PTA is forward-looking in its obligations, with the objective of endeavouring to minimise the possibilities for the Siminn Group to abuse its SMP for the purpose of limiting competition and thus damaging consumers.

11.2.5.6 Price policy of the Siminn Group in wholesale and retail

1923. The retail price of the line charge has gradually increased in recent years and the difference between wholesale price of local loops and line charge in retail, has increased steadily. A company that enjoys a strong position on the retail market for voice telephony and Internet service can acquire gross profit in the price difference between the retail price of line charge and the wholesale price of local loop lease. No company has a stronger position on the retail market in question and Siminn and one can therefore assume that the Siminn Group is in a unique position to increase the line charges in retail without taking competitors and consumers into account.

1924. The wholesale charge that lies behind Siminn Group line charges is subject to price control with respect to the Mila copper network, as the Mila local loop lease on the copper network is cost analysed and subject to endorsement by the PTA. The Mila local loop price for fibre-optic network is not subject to price control, but other obligations such as on access and non-discrimination are in force. Wholesale charges for other access networks such as those of GR, Tengir or local fibre-optic networks are not subject to PTA price control. Local networks that have received state funding must however comply with rules on state aid, among other things with regards to open access to the network and prices are based on benchmarking.

1925. GR complained to the PTA in 2018 about an increase in the Siminn line charge in retail, and maintained that with this measure, the Siminn Group was collecting the cost of Mila infrastructure investment from Siminn customers without Mila increasing its tariff for local loop lease, thus damaging the GR competitive position. This was a breach of the PTA Decision no. 21/2014 (market analysis of wholesale markets for local loops and bitstream) and the PTA

Decisions numbers 5/2017 and 6/2017 (review of Mila wholesale tariff for copper local loops and bitstream access through copper network).

1926. More precisely, GR considered that Mila had breached the price control obligation that had been imposed on Mila with the above specified PTA decision from 2014. On the one hand by collecting increased revenue through an increase of retail price for line charges by the parent company of the Group and on the other hand by practising predatory pricing which did not reflect the real cost to Mila of providing wholesale service through the company's local loops. In the opinion of GR, Mila should have increased the prices of both its copper and fibre-optic local loops to meet additional costs from the company's fibre-optic rollout. It was inevitable that this very substantial Mila investment in fibre-optic and related equipment should have led to a change in the company's cost base, which should have been reflected in the Mila wholesale tariff as an increase. The need for price increase within the Group had instead been met at retail level and in this way the Group had leveraged its vertical integration. GR considered that companies in a dominant position on the market bore a strong obligation not to distort competition with their actions, in this instance predatory pricing of service at wholesale level. The obligation for price control in the PTA Decision no. 21/2014 was among other things, intended to ensure the above. Though consumers might enjoy in the short-term receiving electronic communications services at a low price, distortion of competition that predatory pricing caused would lead in the long term to higher prices, lower quality and fewer choices for consumers. This meant that other companies that did not have a comparable financial strength to that of the Siminn Group, could drop out of the market. Pricing of this kind could support oligopoly, with attendant harm for consumers.

1927. Tengir broadly agrees with the above specified views of GR and considers that Siminn gross profit from line charge is abnormally high and the question is whether the Siminn Group is using its size and inhibiting growth or delaying Tengir growth in the Tengir operational territory with abnormally low Mila wholesale prices and is thus able to embark on civil works e.g., in Akureyri, without there being a commercial basis for such.

1928. With the PTA Decision no. 14/2018 dated 10 September 2018, the PTA considered that it did not have the legal authority to intervene in Siminn retail prices, including line charge, and therefore dismissed the GR complaint with respect to that issue. The PTA price control Decision no. 21/2014 did not cover the Siminn line charge. Siminn was not subject to retail obligations, and it was for the Competition Authority to resolve possible problems that arose at retail level. A possible breach of retail pricing by Siminn could therefore not constitute a breach of the price control obligation in question that rested on Mila.

1929. The PTA also rejected that the cost base for Mila copper local loops was incorrect. The Mila price for access to copper local loops was based on the company's costs for investment in its copper system, and on operation of the system in accordance with the price control obligation that had been prescribed in the PTA Decision no. 21/2014. This meant that Mila investments in fibre-optic local loops were not in that cost base. For this reason, the PTA rejected the GR assertion that this was a case of unlawful predatory pricing of copper local loops on the basis of an incorrect cost base for the wholesale tariff and referred to its Decision no. 5/2017 that contained a decision on the Mila wholesale tariff for copper local loops. Then it was stated that the PTA was conducting market analysis on the local loop market and would subsequently publish the conclusions of that analysis for national consultation. It would then be dependent on the conclusion of that analysis, whether and which obligations would be imposed on Mila on this market. There would be no decision on the cost base for fibre-optic local loops as they were not covered by the obligation for price control. While there was no

price control obligation on Mila fibre-optic local loops, possible competition problems that might result from Mila pricing of fibre-optic local loops would be first and foremost within the remit of the Competition Authorities surveillance. As there was no obligation on Mila that the company's tariffs for fibre-optic local loops should be cost-based, the PTA had no grounds to decide on whether the tariff supported Mila costs from providing this service.

1930. With the PTA Decision no. 8/2019 dated 16 April 2019, the PTA endorsed new prices for Mila copper local loops, subsequent to review and updating of the cost model and the company's wholesale tariff for copper local loops. In processing the decision, which mostly took place in 2018, it was stated by Mila that the company's fibre-optic rollout was taking place across the whole country, so it was foreseeable that use of the copper system would greatly diminish in the near future. For this reason, Mila considered it necessary to look to the future, to a greater extent than before, when it came to investments in the copper system. Otherwise, there was a risk that prices would increase excessively as there were investments in the ground that were no longer being used. Mila proposed that investments in investment plans for the years 2018-2020, should be used as a basis.

1931. The PTA conclusion was to use investments and investment plans for two years as a basis as was the custom, i.e., the years 2018 and 2019 in this instance. The PTA stated that Mila was right that given unchanged circumstances regarding the Mila two-year projection, the investment base would be higher than if it were based on a three-year projection. The trend was that copper local loops were decreasing in number because of greater supply of fibre-optic local loops and the Mila supply of fibre-optic local loops had increased significantly. The position on the wholesale market for local loops was that copper local loops were considerably less expensive than fibre-optic local loops²⁴⁴. This was however not in all instances passed on to the consumers as some electronic communication companies, had increased the line charge to consumers and no longer made a distinction between line charges for these types of connections. With this arrangement electronic communications companies profited more, the greater the number of copper local loops they were leasing. For this reason, an increase in wholesale price should not necessary, lead automatically to a corresponding increase in the line charge in retail. This raised questions on what the advantage was of limiting increases in monthly charges for copper local loops in wholesale, and whether this was beneficial for consumers. To maintain too low a price for copper local loops could lessen the incentive for investments in fibre-optic local loops and could be conducive to distorting competition which would have a negative impact on consumers if one looked to the long-term.

1932. The PTA finally stated in the above specified Decision no. 8/2019, with regards to the development now taking place on the local loop market, that the Administration was now working on a market analysis on that market. On the basis of this market analysis, the PTA would examine carefully whether it would be necessary to make changes to the obligations that rest on Mila on that market, among others, price control.

1933. From the time that the above specified PTA Decisions nos. 14/2018 and 8/2019 were published, the Siminn line charge in retail rose even further and is now ISK 3540, including VAT (2855 ex VAT) in February 2021. As previously stated, the wholesale price for Mila

²⁴⁴ In January 2021 the monthly price for fibre-optic local loops was 36% higher than for copper local loops in the Capital City Area and Akureyri and about 50% higher in other areas. But then at the same time, the monthly price for copper local loops delivered in Access Option 1 was 35% higher than the monthly price for copper local loops delivered in Access Option 1 in the Capital City Area and Akureyri and about 70% higher in other areas. This difference is however not reflected in retail prices of electronic communications companies by area.

copper local loop lease is ISK 1558 at the same time and ISK 2120 ex VAT for fibre-optic in the Capital City Area and in Akureyri and elsewhere, it is ISK 2480. It is clear that the Siminn markup on line charge for copper local loops in recent years is measured in tens of percentage points, and even up to just over 100%. The markup is somewhat less in the case of fibre-optic local loops but nevertheless generous. Given the available wholesale and retail prices within the Siminn Group and the number of users, one can roughly estimate that the Siminn markup on line charge amounts to ISK billions during recent years.

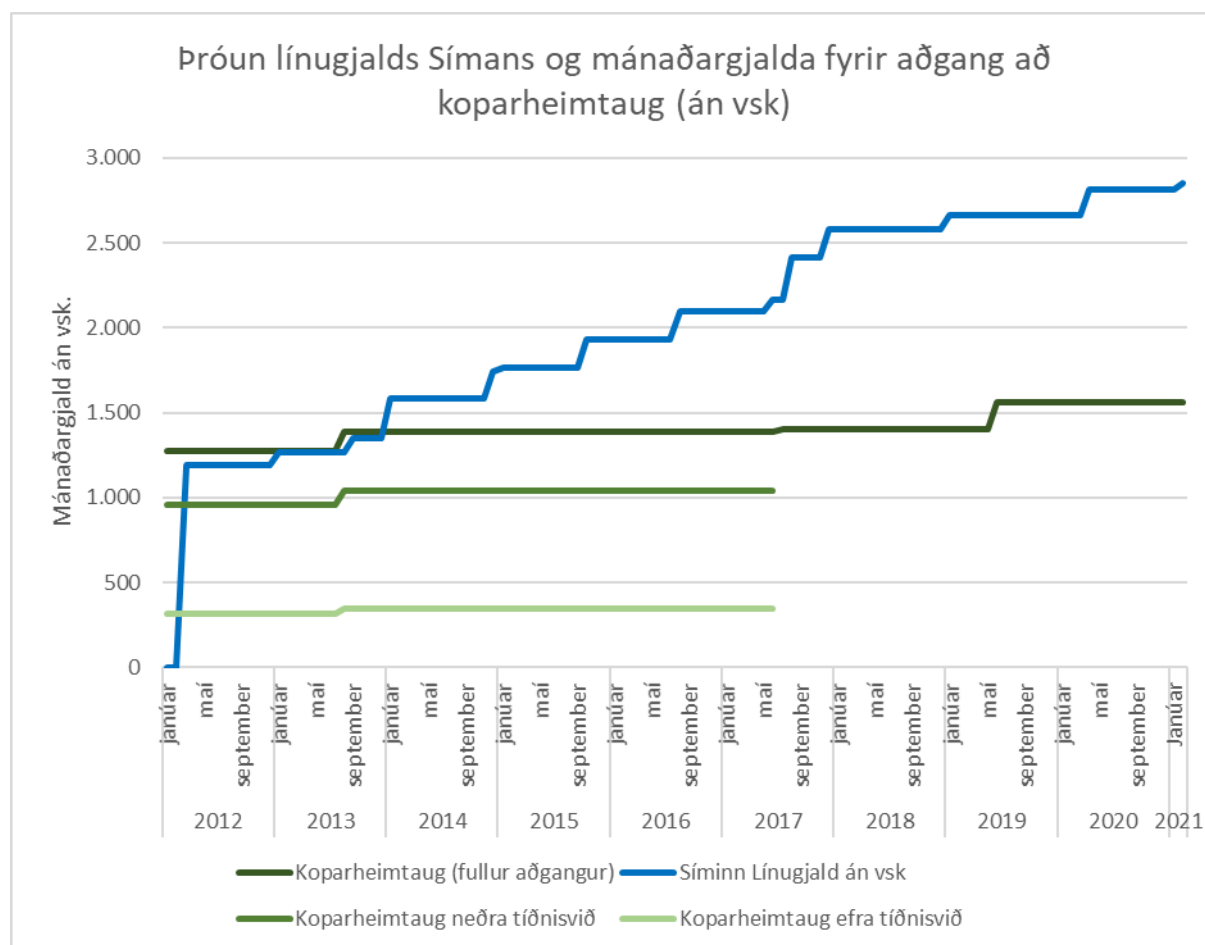
1934. Given Siminn's strong position on the retail market that has hardly decreased since the last analysis in 2014, Siminn can increase the line charge in question almost at will, without any apparent significant cost increase underlying such increases by Siminn.

1935. The PTA considers it not out of the question that the Siminn line charge was increased in recent years and, at least to some extent, used to support the Mila extensive and costly fibre-optic rollout. It is then clear that the Siminn Group benefits from having the possibility of using its vertical integration in a manner that other electronic communications companies in this country do not have at their disposal. In addition to this, such an incentive does exist, though it will not be decided here whether such abuse has taken place. Cross subsidies in pricing between wholesale and retail are among the risk factors for competition under such circumstances. Whether this route was followed or not, it should not be a deciding factor as to whether it is appropriate to apply obligations to prevent it, including with the non-discrimination obligation and obligation for price control.

1936. The Mila price for access to fibre-optic local loop with Access Option 1 - which is as previously stated, the access which is purchased in the large majority of cases by electronic communications companies in the case of access to Mila fibre-optic local loops - did not increase from 1 June 2017 until 1 September 2020, for more than 3 years, while at the end of this period the charge is increased by about 7.7% in the Capital City Area and Akureyri, and by 4.6% in the countryside. At the same time the building price index increased by 12.5% which means that Mila prices fell in real terms during this period, while at the same time Mila was conducting vigorous and wide-reaching fibre-optic deployment. This Mila price policy could indicate under-pricing by Mila. The PTA has however not cost analysed these service items at Mila, so the PTA cannot as previously stated, assert whether this was the case or not. It is possible that this reduction in real terms can be explained by Mila having achieved more economies as the company's fibre-optic local loops increased. It could however be advantageous for the Siminn Group to under-price certain service temporarily in order to improve its competitive position even further when the Group has the opportunity to recoup such under-pricing in the light of its position as a vertically integrated company.

1937. With respect to pricing on-line charge, the Mila copper local loop wholesale price is ISK 1558/month ex VAT. In March 2020, the Siminn line charge was ISK 2661/month ex VAT which meant that the difference between the wholesale price and retail price was ISK 1103/month. At this time, Siminn leased [...] copper local loops from Mila which means that Siminn gross profit from their line charge was ISK [...] per month at this time. In April 2020, the Siminn line charge then increased to ISK 2815/month ex VAT. and in February 2021 to ISK 2855/month ex VAT. This means that the Siminn line charge and wholesale charge for copper local loops (ex VAT) is ISK 1297/month for each local loop (83% markup). To the best of the PTA's knowledge this is a simple resale which means that one has to consider this to be an extremely generous markup, given what had been the practice in Siminn cost analysis throughout the years, which has been about 10-20% for simple resale, [...]. In the following

figure one can see the development of the Siminn line charge and the price of Mila copper local loops:



1938. The line charge was initially resale of the monthly charge for the lower frequency range of copper local loops and the markup was then 24%. As can be seen in the figure, the Siminn line charge increased steadily, and it is therefore clear that Siminn annual profit from the resale is very substantial although copper local loops are on the decline. In the opinion of the PTA, there are many indications that an 83% markup on resale of copper local loops to consumers is a very high markup.

1939. With respect to the access charge of other parties to copper local loops, it is Vodafone that is closest to Siminn in the number of leased local loops while other companies are leasing copper local loops from Mila on a smaller scale. The Vodafone access charge was ISK 2734/month ex VAT in January 2020, while at that time Vodafone leased [...] copper local loops from Mila. Vodafone gross profit from lease of copper local loops was therefore by comparison, quite substantially less or about [...] ISK per month. In February 2020, the Vodafone access charge increased to ISK 2815/month and on 1 January 2021 it increased to ISK 2895/month.

1940. The PTA wishes to reiterate that the Administration does not need to prove that Siminn used profits from the line charge to fund Mila investments in its fibre-optic network, or so that Mila could predatory price its fibre-optic local loops and/or bitstream service through them.

The PTA is indicating here the possibility that the Siminn Group has to leverage its dominant position to make things difficult for competitors. Mila has been funded by the Siminn Group, which means that the Group, by virtue of its position as a vertically integrated company, has the opportunity to predatory price Mila fibre-optic local loops and/or bitstream service and to recoup its costs with excessive line charges on copper local loops through them. No other electronic communications company on this market has such an opportunity for cross subsidy of this nature. Although other electronic communications companies have priced their access charges in a comparable manner to Siminn, none of them leases out anything like the number of copper local loops that Siminn does. The Siminn gross profit from resale of Mila fibre-optic local loops and/or bitstream service over them, is furthermore greater than the gross profits of other electronic communications companies from resale of Tengir and GR fibre-optic.

1941. The Siminn markup on the line charge in the resale of Mila fibre-optic local loops is 35% in the Capital City Area and Akureyri and 15% in the countryside. Though the Siminn markup on fibre-optic local loops is small in the countryside compared with that in the Capital City Area and Akureyri, this is unacceptable markup for resale in the opinion of the PTA, and these fibre-optic local loops are furthermore only a fraction of the local loops resold by Siminn. The PTA can therefore not see that it is necessary for Siminn to maintain an 83% markup on copper local loops to subsidise the cost of this resale.

1942. In its comments on the PTA additional consultation document, which was submitted for consultation on 30 October 2020, the CA agreed with the PTA conclusion with respect to the Siminn generous markup on line charge and to the performance of the line charge, and the CA is now conducting an investigation on this issue. In the CA case it was stated that [...].

1943. During the years 2018-2019, GR has complained on three occasions to the Competition Authority about the behaviour of Mila and Siminn with regards to wholesale pricing for local loops and the Siminn line charge at retail level. The GR complaint is in short that the Siminn Group predatory prices the wholesale price for local loops, both copper and fibre-optic, on the basis of large investments in access networks during the past years but takes abnormal revenue from the retail level for access to local loops with a markup and pricing in the form of Siminn line charge. This matter is under review with the Competition Authority. In its complaints, GR mainly maintains that this is a breach of the settlement between Siminn and the Competition Authority, which should have prevented abuse of the Group's vertical integration, among other things with the separation of Mila and Siminn, independence of Mila and separation of service items of the companies, in order that there should be no cross subsidy in pricing that might possibly distort competition at wholesale level.

1944. When the market analysis now in force was conducted in the years 2013 and 2014, Mila had not commenced fibre-optic rollout to any significant extent. Now the situation is that it reaches about 77,000 households and companies in the country and further rollout is planned for the coming years. Today the proportion of Mila bitstream connections or fibre-optic is about 48% while the proportion of bitstream over copper local loops is about 52%. It is clear that this development will continue during the lifetime of this analysis, with further roll-out of Mila fibre-optic local loops and further uptake of the service with migration from copper connections to fibre-optic connections. Unchanged PTA obligations on non-discrimination and price control, and the latter only cover copper local loops, would thus have increasingly less impact as this development unfolds.

1945. On the corporate market, GR has been competing with Mila products, which are based on fibre-optic in the Mila access network, what are called Ljós lína. In recent years, GR has

developed a new active access network for companies in order to endeavour to increase their marketing effort on the corporate market in question where Mila has been in a dominant position, according to GR. In a submission from GR to the PTA, it is among other things stated that Mila enjoyed SMP on the market in question pursuant to the PTA Decision no. 8/2014 (Market 6 for terminating segments of leased lines, now Market 4 for high quality central access for companies). GR performance on that market has not been good and far from that which is seen on the residential market. Mila has recently commenced sale of new products on the corporate market that are based on GPON bitstream technology at the same time as the company has been making a strong effort to deploy fibre-optic to households and companies, according to GR.

1946. According to GR, Mila has described its GPON network, such that it was suitable for small and medium-sized companies and that the service on offer was symmetric and up to 1 Gb/s. The PTA has defined fibre-optic local loops based on GPON technology as a separate market, i.e., Markets 4 and 5 pursuant to PTA Decision no. 21/2014 where a price control obligation was not in force there in the same manner as on the Market 6 in question. Mila had three varying prices for fibre-optic to companies. In residential areas, the price was the same as for households, i.e., ISK 1970, GPON fibre-optic local loop to companies were on the other hand at ISK 4980. The price of fibre-optic line on Market 6 was however ISK 13,777, which was based on cost analysed price. The difference was thus from 177-599%.

1947. It was then stated in the GR submission that pursuant to the Mila tariff there were five varying options on offer.

- **Residential connection to company 1:** 1 Gb/s at ISK 2860 (company in residential area, no VLAN and lower priority for faults. According to information from electronic communications companies the reaction was however the same as for standard corporate connections).
- **Residential connection to company 2:** 1 Gb/s at ISK 5,870 (company in commercial area, no VLAN and lower priority for faults. According to information from electronic communications companies the reaction was however the same as for standard corporate connections).
- **Company connection 1:** 100 Mb/s at ISK 10,960 (company in commercial area, VLAN possibility and higher priority for faults).
- **Company connection 2:** 500 Mb/s at ISK 16,960 (company in commercial area, VLAN possibility and higher priority for faults).
- **Company connection 3:** 1 Gb/s at ISK 22,960 (company in commercial area, VLAN possibility and higher priority for faults).

1948. It was then stated in the GR submission that when developing an access network based on PON technology, Mila had the option of locating the PON splitter either in a telephone exchange (central) or in a conduit access pit (near buildings). For example, the PON splitter was located in Mila telephone exchanges Rauðarársímstöð and Engihlíð. The splitter could also be installed at the outset and later whole spliced in the conduit access pit to form an uninterrupted optical fibre for a specific company. The topology could also differ depending on whether it was local loop network in the direction of residential areas or commercial areas. If a GPON splitter was located in telephone exchange, there was no fundamental difference in these two products, i.e., fibre-optic local loop or Ljósnet. In the opinion of GR, it was perfectly clear to Mila that by selling PON corporate products, these two markets were overlapping. It

had been clearly stated in communications between Mila and the PTA in the PTA Decision no. 24/2017 (review of Mila wholesale tariff for optical lines in street cabinets (Market 4/2008) and Ljósnet in access network (Market 6/2008)).

1949. In Mila comments on the preliminary draft, it was among other things stated that the development phase in the Mila fibre-optic system was progressing well. In a number of instances where the development was not completed, splitters had been installed in a telephone exchange to serve a small proportion of customers on the corporate market, e.g., close to the telephone exchange. These were exceptions and Mila, plan to move the splitters out into the network as the development progressed. Corporate connections on GPON are significantly more expensive than to households.

1950. It was stated in the GR submission that in the Mila reference offer there was a definition of Mila fibre-optic products in access network. It was difficult to understand from the Mila description, whether this referred to one or more access networks. It was however clear from the description that division into areas mattered with regards to the product offer. According to the Mila definitions, Ljósína could be the same thing as fibre-optic local loop if TOAL was located in the telephone exchange. In the above specified communications between PTA and Mila in PTA Decision no. 24/2017 it had among other things been stated in Mila's discussion that Ljósnet were in no way different from fibre-optic local loops. The conclusion was that Mila had disagreed with the PTA but had submitted a cost model so as not to delay calculations of lease price for optical lines. As before, Mila seemed to behave in such a manner that optical lines and fibre-optic local loops were the same thing. In the opinion of GR, there was such overlap between these markets that it would not be possible to separate them.

1951. It was finally stated in the GR submission that the situation was now that an SMP operator could arrange his product offer in such a manner that he avoided obligations on the corporate market. In the opinion of GR, the PTA should review the decision that price obligations should not be applied on Markets 4 and 5. GR furthermore considered there to be an urgent need for the PTA to review the cost base and the grounds for the cost base for the Mila fibre-optic access network.

1952. GR has described how the company found it difficult to get a foothold on the corporate market. The PTA does not have sufficiently good data at this point in time to present definitive conclusions on the state of competition on the corporate market. This will have to wait until further analysis has been conducted on Market 4 which will take place later this year. The precise position of GR on the corporate market does not have a definitive impact on the analysis of Markets 3a and 3b, so that will not be examined in this connection.

1953. In its preliminary analysis, the PTA considered that with the extensive rollout of fibre-optic in the Mila access network, the product Ljósína (optical line), which previously was a separate solution and only delivered to individual customers on the corporate market by order on payment of a significant start-up charge, was now part of the company's general access network and that it should be within the relevant market for local access provided at a fixed location, Market 3a. In the same way the GPON bitstream solutions that Mila offered on the corporate market were fundamentally the same as those offered to residences, and some of them are called residential connections to companies, and they belonged to the market for central access provided at a fixed location for mass-market products, Market 3b. There was a considerable likelihood that the same or at least analogous competition problems existed with respect to these corporate solutions as were described for the residential connections.

1954. In the PTA additional consultation dated 30 October 2020, the PTA notified that it would retract this change, with respect to Mila Ljóslína. It generally applied to Mila Ljóslína that such lines were not normally deployed in the same investment projects as the public local loop network, which was deployed in the comprehensive network in Mila's fibre-optic rollout. They still required a special order and as appropriate, were only deployed against a share of start-up costs. There were thus other criteria for Mila investment in the Ljóslína in question than in the general distribution of fibre-optic in the company's access network. Parties to the market raised no objections to these changed PTA plans.

1955. With the above in mind, it is the assessment of the PTA that the Siminn Group has both the incentive and the possibility to use its vertical integration in such a manner when pricing its wholesale and retail goods that will result in competitive imbalance, whether this is at retail or wholesale level, all depending on where the main battle line lies in competition in the electronic communications market. In the short term, the Group could endeavour to price its wholesale products low in order to make it difficult for competitors at wholesale level, and even to force them from the market. It is clear that such would later in the long-term lead to higher prices at wholesale level and less competition on downstream markets, higher prices to consumers and fewer options for them.

11.2.6 Cases that the Competition Authority is processing vis-à-vis the Siminn Group

1956. Apart from the above specified line charge case, the Competition Authority has a large number of submissions for processing that relate to the Siminn Group and that could concern the provisions for banning in competition law and/or settlement with the Competition Authority that Siminn agreed to in 2013 and which was revised in 2015. After the preliminary draft was submitted for consultation, the CA made Decision no. 25/2020, which relates to the Siminn bundling of English football in Sjóntvarp Símans Premium and Heimilispakkinn, which has been explained here above. The Competition Authority has also notified about investigations in other cases. The cases are:

- Bundling with English football in Heimilispakkinn.
- Margin squeeze in Siminn wholesale of English football.
- Siminn free offer of Heimilispakkinn and Sjóntvarp Símans Premium (free 2-3 months).
- Wholesale refusal of English football until the turn of the month of July/August 2019.
- Other tying sales/bundling that Heimilispakkinn constitutes.
- Possible amendments to the settlement between Siminn and the Competition Authority.

11.2.7 Settlements between Siminn Group and the CA

1957. The Siminn Group has made settlements with the CA that are among other things, intended to mitigate the impacts of vertical integration. The SE decisions now in force with respect to CA settlements with the Group are number 6/2015, which mainly deals with separation of operations of Mila and Siminn and number 20/2015 which sets conditions with respect to Siminn TV service.

1958. It is the assessment of the PTA, see discussion here above, that the settlements have not prevented the Siminn Group from leveraging the power inherent in vertical integration. Among other things, one can mention that Siminn competitors have long complained to the CA about behaviour that they consider to be a breach of the above-mentioned settlements. In a ruling by the Appellate Committee for competition number 1/2020, there was discussion on alleged breaches of both of the above specified settlements. A breach of the settlement, pursuant to Decision 20/2015 was confirmed in the ruling and an alleged breach of the settlement, pursuant to Decision 6/2015 was referred back to the CA because of a fault in case procedure.

1959. The PTA has indicated various examples here above of Siminn having denied competitors wholesale access in instances where the Group has maintained that the access in question could not be directly categorised under obligations and conditions in force. Regardless of whether the relevant access is finally judged to be subject to obligations or CA conditions or not, this behaviour is generally conducive to inhibiting competition.

1960. The PTA furthermore considers that despite the settlements in question, the Siminn Group has for example the possibility of forming a price and investment policy in such a manner that could benefit the Group in competition and equally make things difficult for competitors. There one can for example cite the pricing policy which has been in practice with respect to line charge and the Mila policy to almost only commence deployment of fibre-optic local loops in areas where other parties have commenced deployment of fibre-optic in competition with the Mila copper network, unless state aid is paid. Pursuant to paragraph 3 of article 5 of the above-mentioned settlement, Siminn has a certain latitude to form policy for the Group as a whole, which takes into account its overall interests, though certain constraints are imposed with respect to intervention in Mila commercial policy and to Siminn return on performance requirement to Mila, in paragraphs 1 and 2 of the same Article. The strikingly candid Siminn comments that appear in the comments to the preliminary draft and the comments on the additional consultation document, where Siminn unequivocally protects Mila's interests, and does not behave like an independent service provider that in general would benefit from obligations on Mila, confirm that Siminn protects first and foremost the interests of the Group.

1961. There is further discussion on the content of CA conditions, particularly pursuant to Decision no. 6/2015 in Section 11.4.2, where individual conditions are compared to obligations pursuant to the Electronic Communications Act and where the need for obligations is assessed in the context of the conditions.

11.2.8 Summary and conclusions on competition problems related to Market 3b

1962. Obligations are imposed on companies with significant market power with the aim of combating real and/or potential problems in the field of competition on the market in question, and the adjacent wholesale Market 3a and related retail market. Problems in the field of competition, with the exception of problems that can derive from market structure, refers to any kind of behaviour by a company with SMP, which is intended or leads to competitors being forced out of markets, which prevents potential competitors from entering the market and/or damages consumers' interests. When obligations are applied pursuant to the Electronic Communications Act, the reason does not need to be that a dominant market position is in reality being leveraged, and it is not a criterion that a competition infringement might have been committed, but it suffices that competition problems could possibly arise from the prevailing circumstances, among other things because of specific market structure, that are detrimental to competition.

1963. In the sections above, many potential and real competition problems related to Market 3b were described. The problems that are likely to arise and that impact on the adjacent wholesale Market 3a wholesale and downstream retail markets if obligations were not in place on the market, were related firstly to vertical integration and the great strength of the Siminn Group, and the could for example be manifested in denial of access, discrimination in pricing, cross subsidies, damaging predatory pricing, delays in negotiations or delivery, abnormal requirements to counterparties, discrimination in quality, discrimination in provision of information or abuse of information from counterparty.

1964. Second are problems related to SMP on the relevant market and that arise on the same market and on related markets and they are particularly of three types: entry barriers and abuse vis-à-vis competitors on the relevant market, abuse vis-à-vis competitors and inefficiency in production. These are on the one hand problems that relate to market structure, which is characterised by the vertical integration in the Siminn Group, and to its strong position. Various circumstances are described there that can lead to incentive and possibility for the Siminn Group to leverage its market power and position, among other things in pricing of service within the Group, to impede competitors on the relevant market. On the other hand, examples are named of behaviour that it is clear the Group has demonstrated and that has such an impact or has had such an impact in recent years.

1965. Mila controls the country's only bitstream system with close to national coverage and is in some locations the only party on the market. Despite the fact that in some areas, new network operators on parties that operate bitstream service have entered the market, Mila still has a substantial lead in market share over the next party at national level. At the inception of competition, Mila almost exclusively used in its copper network, which was upgraded regularly with the newest technology on offer at any given time, including bitstream equipment. In recent times, Mila has increasingly and rapidly developed and purchased fibre-optic networks and has built bitstream service on those networks. Mila operates bitstream connections on all of its access networks and also on a number of other small networks, including the Tengir network and most countryside networks.

1966. Substantial barriers to entry exist on the market in this country because of its small size. There are thus no locations where two network operators are competing at the same place, except in Reykjanesbær where there is also a cable system partly owned by the municipality, and at some locations. Mila is the only party on the market. Most network operators are dependent on Mila with respect to various procurements such as facilities, trunk lines and bitstream. Mila has in some instances shown a tendency to impede such access.

1967. It is the PTA conclusion that Mila would have the opportunity to use its vertical integration by transferring market power from Market 3b to downstream markets if obligations were not in place at wholesale level. The Siminn Group also has, as previously stated, endeavoured to use vertical integration by leveraging retail level to strengthen the position at wholesale level, e.g., by refusing to deliver TV content to other networks. There are also various indications that the Group has used an abnormal price policy that can make it difficult for competitors on the relevant market and downstream retail markets, if this proves to be true.

1968. Mila market share on Market 3b is still very high, about 57% at national level and the Siminn market share of the retail market now stands at just under 50%, which means that the Siminn share has hardly fallen since the last analysis in 2014. Mila market power on Market 3b and vertical integration of the Group are conducive to inhibiting competition, both at wholesale and retail levels, thus damaging consumers' interests.

1969. With all the above in mind, identified and potential competitive problems are no fewer now if not more than they were in the last analysis. Though the market structure has only changed at wholesale level, among other things with a smaller Mila market share on the relevant market, there has been little change at retail level, and if anything, the development has been negative with respect to various factors. The possibilities and incentive for the Siminn Group to use its market power is no less now, and the Group's behaviour reveals serious competition problems. It has been recounted that the Competition Authority is processing quite a number of cases that relate to alleged behaviour by the Group during recent years, that among other things, relate to accusations from other market players to the effect that the Group has used its market power and vertical integration in a manner that is contrary to the ban provision of the Competition Act and/or the settlement made by the Siminn Group with the Competition Authority during recent years.

1970. It is clear in the opinion of the PTA that the various obligations need to be tightened in an endeavour to prevent or mitigate damaging consequences of the competition problems in question. In the last analysis, the PTA e.g., only imposed price control of bitstream on Mila copper local loops and not on fibre-optic local loops. Mila had then hardly commenced fibre-optic rollout. During the last years, Mila has been implementing extensive development of fibre-optic network to residences and companies, which now reaches about 77,000 such parties and the company has announced that this development will continue during the lifetime of the analysis. The situation now is that about during the period 48% of Mila's sold connections on the relevant market are fibre-optic connections against about 52% bitstream connections on copper, and it is clear that this development will continue during the lifetime of the analysis. This means that the importance of unchanged obligations diminishes steadily on the relevant market. Given identified and potential competition problems on the relevant market, the PTA considers that it has no other option than to prescribe continuing price control of central access to the Mila copper local loop network, and to impose an obligation for the Siminn Group to withstand an ERT test with respect to the Groups fibre-optic products, as will be explained in more detail here below in Sections 11.7.2 (non-discrimination obligation) and 11.7.5 (price control).

11.3 Obligations in force

11.3.1 Obligations imposed with the PTA Decision no. 21/2014 from 13 August 2014

1971. With the PTA Decision no. 21/2014 dated 13 August 2014, obligations were imposed on Mila on the market for bitstream access in wholesale (then Market 5), and that market is fundamentally the same as Market 3b, though some changes have been made on market definition. In the following subsections there is a description of the obligations that were imposed and that will continue to be in force until the market analysis here under discussion comes into force.

11.3.1.1 Obligation to provide access

1972. With the authority in article 28 of the Electronic Communications Act the PTA imposed on Mila an obligation to accede to normal and reasonable requests for open access to specific network facilities on local loops at wholesale level. The network facilities in question here were on the one hand, access to bitstream which went through the upper frequency range of copper local loops, see Access Options 1-3, and on the other hand, access to bitstream through fibre-optic local loop. Mila should also, if this is requested, handle the sending of bitstream through

its backbone network to a location where the electronic communications company in question had a connection with the Mila network. Mila should offer wholesale broadband access for resale to electronic communications companies that provide broadband services in wholesale for resale. Mila was obliged to provide hosting of equipment of other electronic communications companies and access to other facilities necessary for the bitstream access to be fully used. Mila should also provide access to support systems and information systems analogous to those used by service departments of the Siminn Group. In addition to this Mila was required to notify all technical migration in advance so that customers could react in a sufficiently timely manner. Mila should also offer access to the services taking place on broadband such as VoIP and multicast. Access to the Mila VDSL system was also included in these obligations. In order to limit Mila's possibilities to delay negotiations on agreements it was necessary to impose obligations on the company for non-discrimination and transparency and the obligation to publish a reference offer.

11.3.1.2 Obligation for non-discrimination

1973. With the authority of article 30 of the Electronic Communications Act the PTA imposed the obligation on Mila that all electronic communications companies that purchased access to bitstream, regardless of whether it was transmitted through copper or fibre-optic, enjoyed the same conditions including price as applied to units within the Siminn Group or related parties. Quality of access provided to unrelated parties should not be less than quality of access provided by Mila for units within the Siminn Group or for related parties. The obligation for non-discrimination that the PTA had imposed on Mila would be for Equivalence of Input which was where the company was obliged to offer the same price, use the same service procedures/service systems, the same time limits and publish the same information about the service to related and unrelated customers. Mila should open those systems that are used within the Siminn Group and that were necessary in connection with bitstream access for unrelated parties.

1974. The non-discrimination obligation had to be fully implemented no later than three months after this decision came into force. Within this period of time Mila was obliged to submit documentation to the PTA which demonstrated that the non-discrimination obligation had been implemented. Otherwise, the PTA reserved the right to prescribe a price control obligation for Mila bitstream access provided through fibre-optic local loops. The PTA planned to impose the obligation on Mila that unrelated parties be informed about distribution, enlargement or other developments of Mila local loop networks with the same notice as parties related to Mila and this notice shall not be shorter than three months. Mila should furthermore give related and unrelated parties the opportunity to influence development of new wholesale products and planned interfaces.

1975. VDSL system operators, such as Mila, could reserve up to three months priority rights on VDSL development in a specific area by publishing their three-month distribution plan and intended connection points for VDSL service where they must also notify the PTA about these plans.

1976. In order to ensure that Mila fulfilled the above specified non-discrimination obligation the PTA could perform a technical investigation as to whether unrelated parties could replicate the product offer of units within the Siminn Group or of other related parties in a sustainable manner (Technical Replicability Test). Should the PTA conclusion be that unrelated parties could not replicate the product offer of the Siminn Group or of other related parties for technical reasons, the PTA could instruct Mila to alter its product offer and/or offer new wholesale

products to enable unrelated parties to replicate the product offer of related parties on normal commercial grounds.

1977. Furthermore, the PTA decided to impose the obligation on Mila to make service level agreements (SLAs) with all purchasers of bitstream. Such agreements should cover the various service issues that related to non-discrimination in respect of bitstream access, including orders, delivery, service access, service switching and maintenance. Mila should complete service level agreements with all of its counterparties no later than three months after the publication of the decision on the relevant market. All service level agreements should be published openly on the Mila website. In addition, the PTA decided to impose the obligation on Mila to issue a specific declaration on quality guarantees (Service Level Guarantees (SLG)). Such service level guarantees should cover all necessary service issues that related to non-discrimination in local loop leasing including orders, delivery, service access, service switching and maintenance. Such service level guarantees should among other things prescribe specific fines which Mila must pay to its counterparties should a service level guarantee be breached. Mila should issue the service level guarantees in question within six months from the decision coming into force. Mila should inform interested electronic communications companies about the content of the service level guarantee. Finally, the PTA decided to impose the obligation on Mila that the company regularly gather and publish specific Key Performance Indicators (KPIs), including factors which relate to maintenance services and service switching - for internal transactions on the one hand and external on the other. Mila should publish the information in question in the first instance no later than six months after the decision has been published and subsequently at monthly intervals.

1978. The information gained by Mila from other companies when making agreements for access, or completion of agreements, should solely be used for the purpose provided for and should at all stages be treated as confidential. It was unauthorised to supply information from related or unrelated parties, see article 26 of the Electronic Communications Act.

11.3.1.3 Obligation for transparency

1979. With reference to article 29 of the Electronic Communications Act the PTA imposed an obligation on Mila for transparency in the sale of wholesale access to bitstream. Mila shall publish information related to access to the company's systems for example on bookkeeping for local loops, technical descriptions, characteristics of networks, terms and conditions for delivery and use and tariff. Part of this obligation is that Mila should issue a reference offer for access to bitstream which should be maintained and updated as required and submitted to the PTA for endorsement no later than six months after the PTA publishes its decision on Market 5. The reference offer shall also fulfil the requirements specified by the PTA. The PTA demands that Mila authorise open access to technical interfaces, communications protocols and other technologies that ensure interoperability of services.

11.3.1.4 Obligation for separation of accountancy

1980. With the authority in article 31 of the Electronic Communications Act the PTA imposed an obligation on Mila for separation of accountancy. Such separation should constitute as a minimum that the operation of terminating segments of local loops in wholesale be separated in the accounts from other operations. The Mila wholesale prices and internal prices within the company should be transparent, among other things to prevent unjustified subsidies. In its bookkeeping Mila should separate revenue, costs, assets and liabilities for access to its bitstream service. Mila was obliged to provide the PTA on an annual basis with a breakdown

of the operational accounts and balance sheet for its bitstream access with DSL technology on the one hand and fibre-optic on the other, along with a statement of the division of indirect costs that were not possible to assign through comparison with other cost items. The above specified statement was to reach the Administration no later than five months after the end of the financial year. Mila should at the same time deliver a report from an independent auditor to the PTA to show that there was correspondence between the Mila description to the PTA on how costs are divided and the implementation of accounting separation by Mila.

11.3.1.5 Obligation for price control

1981. With the authority in article 32 of the Electronic Communications Act the PTA imposed an obligation on Siminn for price control for wholesale bitstream access with xDSL technology and related facilities.

1982. Mila should therefore submit to the Administration for endorsement a wholesale tariff for access to bitstream at differing locations on the network with differing DSL standards, that is to say VDSL and ADSL. In addition to this Mila should submit to the Administration for endorsement a wholesale tariff for hosting equipment of other electronic communications companies and for access to other facilities related to bitstream and access to support systems and information necessary for a customer to be able to utilise bitstream. The tariff should be cost-oriented in accordance with paragraph 4 of article 32 of the Electronic Communications Act.

1983. When deciding prices for the above specified bitstream service, Mila should use historical costs allocated to the relevant service (HCA FAC). Emphasis should be placed on determining the division of costs of the company's DSL wholesale service between general bitstream service (best effort) on the one hand and priority service on the other hand (IPTV, VoD and VoIP). Mila should submit the cost analysis to the PTA for endorsement no later than six months from the publication of the Decision. The tariff should then be reviewed annually in accordance with annual updating of the cost analysis. The Administration should have in mind tariffs from analogous competition markets when assessing the conclusions of the Mila cost analysis. The PTA would also have in mind that the tariff should relate logically to Mila's local loop leasing prices.

1984. The PTA decided not to impose an obligation on Mila for price control for the company's bitstream service which is offered over fibre-optic local loops, but on the other hand, imposed an obligation on Mila to provide open access to the company's bitstream service over fibre-optic local loops and obligations for full non-discrimination (including EoI), transparency, separation of bookkeeping and cost accounting. Mila was furthermore unauthorised to apply margin squeeze. The PTA may implement a margin squeeze test to ensure that Mila had not breached the above specified conditions. Should the margin squeeze test show irregular pricing by Mila then the PTA could prescribe amendments to the Mila tariff.

11.3.1.6 Cost accounting

1985. Pursuant to article 32 of the Act on Electronic Communications the PTA imposed an obligation for cost accounting on Mila for specific types of interconnections or for access in accordance with a cost-oriented tariff. According to Chapter IV of Regulation no. 564/2011, on bookkeeping and cost analysis in the operations of electronic communications companies, an electronic communications company with SMP on which special obligations have been imposed pursuant to the Act on Electronic Communications should inform the PTA on the

structure of separation in bookkeeping, with respect to income and expenses, among other things for the user network and the backbone network. The PTA obligation for cost accounting covers those parts of the Mila electronic communications operations necessary for providing wholesale access to the company's bitstream service over copper and fibre-optic local loops. Mila should submit to the PTA a description of the cost accounting for bitstream which should show among other things cost categories, cost items and their relationship with the cost driver. Mila should, no later than six months after the publication of the Decision on the relevant market, submit to the PTA a description of cost accounting for bitstream access and related facilities and should publish cost categories and rules used to allocate costs. /Mila should at the same time submit a report to the PTA from an independent auditor showing that there was correspondence between the Mila description to the PTA of how costs are split and the implementation in the Mila cost bookkeeping system.

11.4 Assessment of impact of existing obligations and need for continuing appliance of obligations

11.4.1 The impact of existing obligations

1986. Obligations imposed in 2014 have assured continued wholesale access to access networks and related facilities and initiated new types of access, such as access to bitstream connections over fibre-optic local loops. There are however examples of shortcomings in provision of access and references made to Section 11.2 here above in this connection. Some kinds of access are hardly technically possible to implement or are not financially feasible. It is for example difficult to provide access in street cabinets where VDSL equipment is located and shared access to fibre-optic local loop, or access to part of the local loop is hardly feasible up to this point in time. Existing obligations have by the nature of things had a direct impact on access for electronic communications companies to Mila Bitstream systems and on the prices offered for such access to the Mila copper network. On the other hand, they have not resulted in a reduction of price in excess of what was obliged and there have been examples of delays in companies receiving access to Mila bitstream systems in excess of that stipulated by the obligation, as is stated in Section 11.2 here above.

1987. It is considered likely that the obligations that were imposed on wholesale have had some effect on pricing in retail as the price for leasing bitstream access is a significant factor in the price of retail service such as the fixed fee for fixed line telephones and Internet connections. It seems, however, that the substantial increase in the Siminn line charge and those of other retailers in recent years is independent of the price for lease of copper local loops or bitstream service over these lines. There has been considerable development in technical solutions and in products carried by local loops since the last analysis. In this context one can mention the substantial performance increase in bitstream transmission, which makes benchmarking even more difficult. But one can say that the prices of the main packages during each period have changed little during the period of validity of the analysis in force and seem to follow the consumer price index, though of course download speed and the amount of data included has increased and consumers therefore received more for the money.

1988. In addition to this, market share at retail level has remained relatively stable. The largest three service providers still have a combined market share of more than 90% at the end of 2020 with the proportional division between these parties remaining similar. The Siminn share has remained relatively stable while the shares of its main competitor, Vodafone, has fallen significantly since 2017. Nova, which started to provide fixed line service a few years ago, has

achieved good results and appears to be filling the gap that 365 left behind when the company merged with Vodafone at the end of 2017. Hringdu share has grown slightly during this period. In addition to this, the importance of bundles that contain electronic communications and TV service has increased considerably in recent years and Siminn position is extremely strong in this area, as the company's Heimilispakkinn enjoys great popularity among consumers, and it appears that Siminn competitors find it difficult to compete with this. Up to this point in time, Siminn service has not been on offer on the country's largest fibre-optic network, which is owned by GR, but there will be changes in this respect from and including the second half of 2021, but the PTA expects that the vast majority of Siminn customers will remain on the underlying Mila network. In the Tengir operational territory, where there is both fibre-optic from Tengir and Mila, Siminn has not made an agreement on bitstream access to the Tengir system. The same as the case with respect to Snerpa in the West Fjords and Austurljós in East Iceland.

1989. On the wholesale market, Mila still has great dominance with respect to the number of bitstream connections. Siminn is still the largest purchaser of bitstream over local loops from Mila while Vodafone is the next largest purchaser of Mila bitstream connections and provides xDSL service on about 6% of all leased Mila bitstream connections which is considerably less than in 2007. Vodafone on the other hand has almost disappeared from the wholesale market in question after Mila upgraded its xDSL system from ADSL to VDSL a few years ago. The obligations in question on Markets 3a and 3b appeared however not to have resolved the above specified horizontal competition problem on the relevant wholesale markets with respect to GR, Tengir, Snerpa and Austurljós.

11.4.2 Conditions pursuant to the settlement between the Siminn Group and the Competition Authority

1990. In Section 10.4.2 here above one can see detailed discussion on the conditions pursuant to the settlement between the Siminn Group and the Competition Authority and comparison between those conditions and the obligations that the PTA intends to impose on Mila on the relevant wholesale Markets 3a and 3b. The reason for this discussion was the assertion in Mila comments on the PTA preliminary draft to the effect that with reference to the settlement that the Siminn Group and the CA made with the CA Decisions number 6/2013 and 6/2015, Mila could not see otherwise than that. Solutions had already been found for at least part of the competition questions that cause concern for the PTA.

1991. In that case, the PTA conclusion was that a comparison of the conditions of the above specified settlement with the obligations that the PTA imposes pursuant to this analysis, showed in reality very little overlap. The same can be said about the settlement that was confirmed with the CA Decision no. 20/2015 which related only to Siminn TV service, among other things, to a ban on specific bundling of electronic communications and TV service. Furthermore, that the above specified settlements had not prevented, in recent years, the Siminn Group from leveraging the power inherent in vertical integration, despite the fact that endeavours had been made to get those problems under control with the settlements. The settlements had not led to effective competition on Market 3a and Market 3b or on downstream markets. The PTA concluded that it was not possible to support effective competition on the markets in question in another manner than by maintaining obligations pursuant to the Electronic Communications Act and to some extent increase them, as will be described in the following sections.

1992. In other respects, reference is made to the detailed discussion in the above referenced Section 10.4.2 here above.

11.4.3 The necessity to impose and maintain relevant obligations and the impact of the obligations

1993. In accordance with the principle of proportionality it is normal to assess the necessity to impose the obligations described in Section 11.7 later in this document. The obligations are conducive to achieving the objectives of the Electronic Communications Act no. 81/2003 for effective competition and economic electronic communications and furthermore to support further deployment of fibre-optic networks in this country. In the light of the potential and real competition problems that can arise, exist or have arisen in recent years and that are that are not less than in the last analysis, see discussion in Section 11.2 here above, the strong position of Mila on the relevant market and of the strong position of the company and of the Siminn Group in general in the light of the companies' vertical integration the PTA considers it necessary to maintain all the above specified obligations on Mila and in fact to add an obligation that the Siminn group withstands an ERT test with respect to the Groups fibre-optic products, in order to support increased competition on the relevant wholesale market and downstream retail markets and to ensure consumer interests. In Chapter 11.7 the case will be specifically argued as to why the PTA considers each individual obligation necessary. In the PTA examination of the relevant market the Administration has come to the conclusion that no other measures can be found that could be as effective in solving the competition problems that exist on the market communications network or could arise. In its preliminary analysis, the PTA nevertheless plan to go even further with the ERT obligation in question and impose an obligation for cost analysed prices for bitstream service over Mila fibre-optic local loops, but subsequent to the additional consultation has retracted these intentions among other things because of considerations of proportionality. Reference is made on this to Section 4 in Appendix C and to Sections 11.7.2 and 11.7.5 here below. The PTA considers that sufficient restraint on pricing within the Siminn Group should be created with the ERT obligation in question.

1994. The obligation for wholesale access on the relevant markets is an essential pre-requisite for competition to become active on the bitstream market and on related markets. It is not possible to solve the competition problems described here above in any other way than by imposing the obligation for access. Access barriers prevent competitors from developing extensive and as appropriate bitstream systems with national coverage local loop networks with national coverage and it is thus a prerequisite for effective competition on downstream retail markets that they can receive access to the Mila network which has close to national coverage.

1995. The obligation for access is something of a burden on Mila but it is an essential prerequisite for effective competition on the downstream markets. It is in fact necessary for electronic communications companies to gain access to the Mila bitstream network in order to be able to offer their customers adequate services across the whole country. The obligation should first and foremost ensure that Mila does not discriminate in making bitstream agreements and delay the entry of new companies by extending contract negotiations. It cannot be considered burdensome to deal with all counterparties for local loops in a satisfactory manner, and in addition to this the company has borne such an obligation for a long time. With a connection with the Mila bitstream network the companies gain better use of the electronic communications equipment in which they have invested. The PTA also considers it necessary to make arrangements such that Mila will not retract bitstream access that the company has

provided on networks where the company has acquired local loop lease access to dark fibre, so that customers of all service providers will continue to have a choice of underlying electronic communications network as the Mila fibre-optic rollout progresses.

1996. The obligation for non-discrimination with respect to access to Mila's bitstream system in wholesale is necessary if companies are to be able to compete on a level playing field on downstream retail markets. The obligation should mean that all electronic communications companies that purchase access to Mila systems receive comparable services and prices and in this way the competition problems related to discrimination will be solved.

1997. The PTA considers that the obligation for non-discrimination is not particularly burdensome on Mila, though the obligation will be elaborated in more detail in this instance. The PTA plans now to add to the non-discrimination obligation and the price control obligation an obligation that the Siminn Group withstands an ex ante margin squeeze test (ERT) on the Mila fibre-optic products such that it will be ensured that Siminn competitors at retail level can compete with Siminn in prices, but up to this point in time there have been no obligations resting on the Siminn Group, with respect to price for bitstream service over fibre-optic local loops at retail level, other than a general non-discrimination obligation on Mila. These additional obligations call for certain inconvenience for Mila and Siminn in the providing of information to the PTA, but the main work in executing the test will be in the hands of the PTA. The addition in question is in the opinion of the PTA not particularly burdensome for the Siminn Group, and much less burdensome than the plans that the PTA had in the preliminary draft for an obligation for cost analysed prices of Mila fibre-optic products. In the opinion of the PTA, the ERT obligation is however necessary to ensure restraint in pricing within the Siminn Group, given the potential and real competition problems that the PTA has described in Section 11.2 here above.

1998. The non-discrimination obligation is necessary in order that other companies can compete with the Siminn Group on the relevant wholesale and related retail markets. The obligation should lead to all companies leasing access to Mila's systems receiving comparable services and thus the competition problems described above with respect to issues such as speed of reply, that can give the Siminn Group with a competitive advantage on the broadband market, will be resolved. Furthermore, to ensure that Siminn competitors can compete with Siminn in prices, and that there is sufficient latitude between wholesale and retail pricing of the Group in this respect. The PTA plans to prescribe a continuing and strict non-discrimination obligation on Mila) EoI), an arrangement that was also in place because of the above specified settlement between Siminn and the Competition Authority.

1999. Mila shall also make service level agreements (SLAs), declarations of quality assurance (SLGs) and shall publish key performance indicators (KPIs). These obligations were new in 2014 and required considerable work for Mila but the PTA considers that the elements in question had been necessary to support increased non-discrimination. In the opinion of the PTA, it is not burdensome for Mila to maintain the systems that were built to fulfil these conditions.

2000. The obligation for transparency, among other things the publishing of reference offers, represents a certain inconvenience for Mila. On the other hand, one has to keep in mind that analogous obligations have been in force for many years and a reference offer has already been published and revised on several occasions. The obligation in reality constitutes maintaining the reference offer and updating it. Publishing a reference offer is in the opinion of the PTA an extremely important part of strengthening competition on the relevant market and in those

product types based on broadband access on downstream markets. The burden that Mila has to bear from the obligations is not excessive if one takes into account how necessary the obligations are to strengthen competition and the fact that the reference offer is already in place. It is necessary for a company planning entry to the electronic communications market to be able to see the terms on offer with regards to bitstream access and also for existing competitors on the relevant market to see the terms and conditions Mila is offering. The obligation for transparency is also necessary to support compliance with the non-discrimination obligation.

2001. The PTA considers it necessary to prescribe separation of accountancy with those companies that have varied operations and a large market share, among other things for the reason that it must be possible to monitor whether non-discrimination is respected with respect to fees to the company's own downstream arm on the one hand and to unrelated companies on the other. Separation of accountancy is also necessary to be able to determine costs for operation of bitstream service and related facilities in an adequate manner, both in the form of copper and fibre-optic.

2002. The PTA considers that it is not possible to use other milder measures if one is to base cost analysis on historical costs. The PTA considers that the obligation for separation of accountancy is not too burdensome, given its purpose, as it is a normal part of company operations today to separate costs for production/operations of varying products or services sold by the company.

2003. The PTA believes that the obligation for price control is absolutely necessary for access to bitstream service over the copper network as Mila has limited incentive to offer normal prices at its own initiative as the company is by far the largest party that provides access to Mila bitstream service nationwide over the company's copper network, and at some locations it is the only company that can offer access to bitstream in wholesale. Abnormal pricing can variously be in the form of prices that are too low, such that competitors that operate their own bitstream system on the relevant market and/or their own electronic communications networks on the related Market 3a are constrained, and in the form of prices being too high, which constrains companies that purchase wholesale access to Mila systems, if there is too small a difference between the Mila wholesale prices and the retail prices on the downstream market. Without such obligations with regards to the pricing of copper local loops, Mila could arrange its pricing in the manner best suited to the Siminn Group in each instance. The PTA considers that an obligation on price control will lead to more efficient operations on the Mila bitstream service over the company's copper local loop network and will lead to a normal composition of prices and to profit at wholesale and retail level for the Group. Despite the fact that this would constitute inconvenience for Mila, the PTA considers the obligation in question to be necessary to strengthen competition on the relevant market and on downstream markets. It reduces the inconvenience for Mila from the obligation in question that such an obligation has up to this point been borne by Mila, and that the company has regularly conducted such cost analyses throughout the years.

2004. In the last analysis of the relevant market in 2014, the PTA did not however impose a price control obligation on Mila for bitstream service over fibre-optic local loops. Against this, there was a much stricter non-discrimination obligation which was intended to ensure that goods, prices and processes would be exactly analogous for related and unrelated parties (EoI). The PTA could also conduct an ex-post margin squeeze test on Mila pricing of fibre-optic local loops and prescribe changes to the Mila tariff if the results of the test indicated too small a difference between wholesale and retail prices. The PTA has not conducted such a test and considers it normal to prescribe an ex-ante margin squeeze test on both Mila and Siminn.

2005. Given the very large number of identified competition problems, some of which relate to Mila pricing on the relevant market analysed by the PTA, which is described in Section 10.2 here above, the PTA considered it unavoidable in its preliminary draft to impose an obligation for cost analysed prices on Mila bitstream service over fibre-optic local loops in this instance. The price control obligation in question were to ensure that Mila enjoyed normal profit from the bitstream service over fibre-optic local loops in question and to ensure more efficient operations of the bitstream system and to lead to normal composition of prices and profit at wholesale and retail level for the Group. Despite the fact that this would constitute inconvenience for Mila, the PTA considered the obligation in question to be necessary to strengthen competition on the relevant market and on downstream markets. The main reason why a price control obligation had not been imposed on Mila bitstream service over fibre-optic local loops in 2014 was that Mila fibre-optic rollout had just recently commenced and it was not felt to be appropriate to impose obligations on the deployment of fibre-optic local loops to households and companies during such a development phase. These arguments no longer applied as almost all households and companies now had the option of a fibre-optic local loop and bitstream service over such networks in this country and it was expected that deployment of these networks would continue for the duration of the analysis if competition on the relevant market and on the adjacent wholesale Market 3b were allowed to flourish.

2006. Subsequent to consultation on the preliminary draft, which took place from 30 April until 10 July 2020, the PTA announced plans in an additional consultation document which was published on 30 October 2020, to retract the above specified obligation for cost analysed prices on Mila bitstream service over fibre-optic local loops and instead to prescribe that the Siminn Group withstood an ex-ante margin squeeze test (ERT). Among the reasons that decided this changed position of the PTA were issues such as proportionality considerations, that the change harmonised better with the EU recommendations on consistent non-discrimination obligations and costing methodologies from 2013 and thus with practices in Europe, that it would rather support increased fibre-optic rollout in the countryside as there was still some way to go in achieving full fibre-optic coverage in the country, that the Siminn agreement on bitstream access to the GR fibre-optic network and other issues that had changed, had altered the competition environment in this country since the publication of the preliminary draft. There is further explanation of this change in the discussion on the obligation for non-discrimination here above, and in addition to this, it is argued further in Sections 11.7.2 and 11.7.5 here later in this document. One can also refer to Section 4 in Appendix C in this connection, and to various PTA replies in Appendix B to comments from parties to the market that were received subsequent to national consultation on the preliminary draft.

2007. As stated above in the discussion on assessment of necessity and impact of the non-discrimination obligation, where the ERT obligation was covered, the PTA considers that there will be some inconvenience created by this, for the Siminn Group, but this change is nevertheless much less burdensome for the Group than the initial PTA plans to impose an obligation for cost analysed prices on Mila fibre-optic products.

2008. The PTA considers that the obligation for price control and for making a cost model is somewhat burdensome and that complying with it entails costs both for Mila and for the PTA. The PTA considers that the obligation for price control on Mila bitstream service over copper local loops and the cost model will lead to more economical operations on the copper local loop network and copper bitstream system and to a normal price composition between wholesale and retail elements within the Siminn Group, which in the long run will lead to lower prices to consumers and lower prices for service based on copper local loop leasing if

competition can flourish. The PTA considers that the obligation will not reduce Mila's possibilities of enjoying normal profit from operating Bitstream systems over copper local loops and related facilities. Mila has previously made such a model for another of the company's regulated services, so Mila has experience of such work.

2009. The PTA considers that the obligations that the Administration imposes on Mila will maintain and increase competition and mitigate competition problems on the relevant market and on downstream electronic communications markets in Iceland.

2010. The obligations there were imposed on Mila in the last market analysis of the relevant market in 2014 have not inhibited development of fibre-optic networks or bitstream systems over them, while fibre-optic networks now cover something over 77% of households and companies in the country. The PTA expects that this will continue to be the case despite the fact that an obligation is now added that the Siminn Group withstands and ERT test with respect to the Mila and Siminn fibre-optic products. This obligation should therefore not limit willingness to invest, whether this is in the Mila fibre-optic local loop network or in those of its competitors, or in bitstream systems over such networks. As previously stated, price control obligations were not imposed on Mila fibre-optic in the last cost analysis for reasons listed here above, and investment in fibre-optic local loops and thus in bitstream systems has been considerable since that time. In the opinion of the PTA, this latitude ("regulatory holiday") returned good results in developing high-speed access networks and bitstream systems, but now the time has come, on the basis of the above specified competition problem is, to better assure competition on the relevant market and on downstream markets, regardless of whether it takes place on copper or fibre-optic networks.

2011. The burden that the obligations constitute for Mila should not decide on their imposition. In the opinion of the PTA, the above specified obligations are normal, appropriate and necessary to support effective competition on the relevant market and on downstream markets, and should not be considered unnecessarily burdensome, given their importance in strengthening competition on the markets in question, with respect to those potential and real competition problems that the PTA has identified and described in Section 11.2 here above. This particularly applies after the PTA withdrew its intention to prescribe a cost analysis obligation on Mila fibre-optic and prescribed instead an ERT obligation on the Siminn Group for its fibre-optic products. The PTA considers obligations to be in the interests of competition in the long-term and that they are conducive to increasing service offers and consumer choice on the electronic communications market as a whole.

11.5 Imposition of obligations pursuant to the Electronic Communications Act

2012. In its analysis of the relevant markets for central access networks provided at a fixed location for mass-market products, the PTA has come to the conclusion that competition is not effective enough and that this situation is primarily a result of Mila's strong position in the relevant markets and the vertical integration of Mila and Siminn. The PTA came to the conclusion in Chapter 9 that Mila had SMP on the relevant wholesale market and that it is not considered that there is much likelihood of this situation changing unless appropriate obligations are still imposed on Mila. In this chapter one can find the obligations that the PTA imposes on the company for the purpose of resolving competition problems and facilitating more effective competition on the relevant market and on downstream markets. Obligations have the main objective of increasing competition on the relevant market and downstream retail

markets and of thus creating conditions for the growth of independent network operators and service providers, both those that are operating on the electronic communications market and potential new parties, for the benefit of consumers.

2013. Given the competition problems described in Section 11.2, the following obligations are in the opinion of the PTA conducive to reacting to issues on the relevant and downstream electronic communications market:

- Obligation for access to networks and appropriate facilities
- Obligation for non-discrimination
- Obligation for transparency
- Obligation for separation of accountancy
- Obligation for price control
- Obligation for cost accounting

2014. In Section 11.7 here below follows detailed discussion on the above specified obligations and the PTA believes that these obligations are both in accordance with the objectives presented in the EU Framework and Access Directives and with the provisions of legislation on electronic communications and that they are appropriate for the period of time that is expected to pass until the market will be analysed again.

11.6 Obligations that vary by geographic area

11.6.1 Guidelines from EU and BEREC

2015. As is stated in Section 5.1 here above, it is stated in an expansionary note to the EU Commission recommendation on the relevant markets that in those instances where NRAs could not identify sufficiently heterogeneous competitive conditions between areas that were sufficiently stable over time, that would justify segmentation of geographic markets, it would be possible to impose varying obligations on an SMP operator that operated across the whole country by geographic area. This would then be a reaction to the existence of varying competition that the SMP operator would face by area, e.g., varying infrastructure competition by area, but the competitive conditions would not be sufficiently different to justify segmented geographic markets.

2016. In the BEREC Common Position on geographic aspects of market analysis from 2014 there is also discussion on the possibility of imposing varying obligations on an SMP operator depending on area in order to tackle varying the competitive conditions between areas should there not be grounds for segmenting a specific service market into more than one geographic market.

2017. In this document it is however indicated that deregulation could exclude areas with lower development costs (generally urban) from the calculation of average prices in areas where obligations would still be in place (usually rural) and thus increase the regulated wholesale price. This could lead to higher retail prices in those areas where obligations were still in force or smaller profits for service providers if the retail price of the SMP operator continued to be

level across the country. This could lead to less competition in those areas that were still regulated.

2018. It should also be considered the impact it would have on consumers if geographic segmentation of the relevant market resulted in varying prices at retail level between areas or in increasing such a difference. Though this might be explained by a more efficient price setting, which reflected among other things, varying underlying costs, it could be particularly difficult for consumers to understand such a price difference as the lower price was only on offer in some areas. Attention should also be paid to the level of transparency, as it could be difficult for consumers to understand what terms were on offer in their area.

11.6.2 The PTA conclusion with respect to varying obligations on the relevant market

2019. The PTA refers to detailed discussion on geographic analysis on the relevant market in Section 7 here above. It was the PTA conclusion that though there was some difference in competitive conditions between municipalities in, this country with respect to market structure and/or behaviour of parties to the market, such a difference was not sufficient to justify segregating geographic markets. It was very important here that it should not be possible to identify varying competitive conditions at retail level. In Section 5, it was stated that there were less requirements with respect to varying competitive conditions for it to be able to prescribe varying obligations.

2020. Given the basis of the PTA analysis of geographical market in the above specified Section 7, and when one considers the potential and real competition problems that were described in Section 11.2, the PTA does not consider it justifiable to take major steps in this instance on elaborating varying obligations for the two areas that the PTA selected for further analysis.

2021. The PTA considered on the other hand that it was possible to lift one obligation related to the access obligation on Market 3b in this instance in those 17 areas²⁴⁵ that the PTA defined as areas with greater competition. This is a rule on notice to inform about migration in network systems. In this respect there are more obligations on Market 3a, but the PTA considers safe to lift in this instance, see Section 10.6.2 here above.

11.7 Imposition and maintaining obligations

Obligation to provide access

2022. Pursuant to paragraph 1 of article 28 of the Electronic Communications Act the PTA may instruct undertakings with significant market power to meet normal and reasonable requests for open access to public electronic communications networks, network elements and associated facilities under certain conditions prescribed by the Administration. There can be

²⁴⁵ The municipalities are: Reykjavíkurborg, Kópavogsbær, Seltjarnarnesbær, Garðabær, Hafnarfjarðarkaupstaður, Mosfellsbær, Akraneskaupstaður, Sveitarfélagið Ölfus, Svalbarðsstrandarhreppur, Grýtubakkahreppur, Tjörneshreppur. Hveragerðisbær, Flóahreppur, Ásahreppur, Fljótsdalshreppur, Rangárþing ytra og Skeiða- and Gnúpverjahreppur. In the preliminary analysis, the areas were only 7, and as the PTA proposed in the additional consultation document to reduce the conditions from three to two and to apply Siminn market share of under 50% instead of 40%, the municipalities where the PTA considers there to be more competition and thus lighter obligations will therefore apply, increased to 17 and now reach about 25% of the country's municipalities, where about 70% of the population lives. The PTA plans to update the list annually, next early in 2022, as of the status at end of year 2021. See more detail in Section 6.4.2 here above.

various types of access and pursuant to paragraph 2 of article 28 of the Electronic Communications Act, they can among other things be the following forms of access:

- a. access to specific network elements or facilities, including unbundled access to local loops.
- b. specific service in wholesale which a third party resells.
- c. open access to technical interfaces, communications protocols and other technology that is necessary to ensure interactive service or virtual network service.
- d. co-location or sharing, including sharing of cable channels, buildings or masts.
- e. service which ensures interaction of service with users including intelligent network service or roaming in mobile phone networks.
- f. access to operational systems or analogous software to ensure competition in service offer.
- g. interconnection of networks or network facilities;
- h. access to virtual networks.
- i. access to other essential facilities.

2023. When imposing an obligation to grant access, it is necessary to consider whether the access in question encourages investments in the network and promotes innovation, efficiency and sustainable competition. In paragraph 3 of article 28 of the Electronic Communications Act it is stated that when deciding to impose obligations pursuant to paragraph 1, the PTA shall take into account whether it is:

- a. technically and financially realistic to use or install competing facilities in view of market developments and the nature and type of interconnection and access involved.
- b. feasible to provide the access proposed.
- c. justifiable, in view of the original investment by the owner of the facility and the risk taken in making the investment.
- d. to the advantage of competition in the longer term.
- e. inappropriate, considering intellectual property rights.
- f. conducive to increasing the supply of services.

2024. Mila's strong position on the wholesale market results in certain entry barriers to the relevant market. The development of a new bitstream system with national coverage requires major investment and it is the opinion of the PTA that it will not be easy to embark on development of such a system and that the development of other systems will be directed at specific areas close to the operating premises of the service provider. Those service providers currently operating all have limited distribution compared to Mila's DSL service which is provided over copper local loops and in addition to this the service providers are generally not planning for distribution outside their existing operational territory. Mila has furthermore deployed its fibre-optic local loops extensively during the past years and this development will continue. The PTA believes that access barriers will continue to characterise market circumstances on Market for wholesale bitstream access and on downstream markets, unless access obligations are imposed on Mila's bitstream system. The PTA considers that consumer

interests will be improved with increased access, as that would give more companies the option of providing Internet service and other related retail service across the whole country.

2025. The PTA has assessed whether the access requirement is technologically and financially realistic and whether it would be realistic for a competitor to set up his own infrastructure in competition, considering market developments and the nature of the access in question. In the light of experience, the PTA considers it quite feasible for Mila to grant the access that is proposed and furthermore it considers it justifiable with respect to the initial investment by Mila. The PTA considers obligations to be in the interests of competition in the long-term and that they will encourage an increase in service offers. With the imposition of obligations, the PTA has taken into account other obligations that rest on Mila and on Siminn, Mila's parent company. Furthermore, the obligations that it is planned to impose on Mila on the wholesale market for local access (Market 3a), where among other things obligations are planned for access to local loops, distribution frames, access to sub loops, open virtual access to sub loops (VULA²⁴⁶) and access to other critical facilities, e.g., DSLAM equipment etc. In the opinion of the PTA, it is not sufficient to only impose access obligations on Market 3a as it is too costly for purchasers of wholesale access to set up their own bitstream system across the whole country. Experience has shown in recent years, that there is more demand for central wholesale access than for local access.

2026. The PTA plans to impose an obligation on Mila to accede to all normal and reasonable requests from other electronic communications companies for central access, see definition of service Market 3b. The access in question is on the one hand access to bitstream which is through the upper frequency range of copper local loops and on the other hand, access to bitstream through fibre-optic local loops for the purpose of enabling other electronic communications companies to provide their users with access to various kinds of broadband service, including VoIP and IPTV television distribution.

2027. Bitstream access shall be offered with the following quality definitions:

- First, access that uses significant bandwidth but without any quality definition (best effort) for general Internet service.
- Second, access that uses little bandwidth but makes high-quality requirements for fixed telephony services over IP (VoIP).
- Third, access that uses large bandwidth and makes high-quality requirements for TV distribution and video over IP (IPTV, VoD) where among other things multicast²⁴⁷ technology is used and the appropriate communication protocols.

2028. The kinds of access mentioned here are first and foremost indicative and neither exhaustive nor do they exclude that other methods may be offered. The PTA considers that the pricing of each access service over bitstream shall depend on the bandwidth load that it entails

²⁴⁶ Virtual Unbundled Local Access.

²⁴⁷ In data transmission through electronic communications networks, multicast is used to transmit data streams where data is sent simultaneously to many users with one transmission from source. The data is multiplied at node points in the network so that for each segment of the network the data only transmits in one copy. The copies are created automatically in network equipment such as network routers but only if the recipients on the network segment in question have requested to receive the stream.

and the quality requirements that it needs to fulfil. This includes all kinds of xDSL access, including ADSL, VDSL and SHDSL and bitstream access over fibre-optic.

2029. Mila shall provide electronic communications companies with access to the same bitstream service, including performance and quality definitions and multicast, provided to Siminn by Mila for Siminn service. In addition to traditional Internet service one can in this respect mention IPTV service which among other things uses IGMPv2²⁴⁸ communication protocols for transmission of TV programmes and RTSP²⁴⁹ for viewing video on demand (VoD). Mila shall also meet requests for access to bitstream service which fulfil normal and objective requirements for another kind of quality control and performance guarantee though Siminn may not be using the same definitions for its service at that point in time.

2030. Mila should also, if this is requested, handle the sending of bitstream through its backbone network to a location where the electronic communications company in question has a connection with the Mila network. Electronic communications companies shall have the possibility to deliver bitstream at various locations in the network and shall have the option of changing possibilities for delivery as required:

1. In DSLAM or equivalent equipment at the place where the copper local loops connect to the telephone exchange distribution frame and/or telephone exchange fibre-optic distribution frame, street cabinet or other equipment space. (Access Option 1)
2. By ATM/IP transit in the Mila trunk line network, i.e., where Mila handles transit of signals from DSLAM and/or fibre-optic distribution frame to the connection point of another electronic communications company with an ATM/IP trunk line network. (Access Option 2)
3. After transmission with ATM/IP on the Mila/Siminn network to the connection point of another electronic communications company with the latter network. (Access Option 3)

2031. When elaborating this access option, the PTA considers it normal to take the efficiency point of view into account. In the case of Access Option 1 in VDSL it could for example prove economic to provide access from some kind of node point where connections from many street cabinets were collected together. Such an implementation could thus have the characteristics of varying Access Options, for example it could be at a level which one could consider to be between Access Options 1 and 2.

2032. In addition to the obligation to provide separate access in the form of bitstream access, the obligations are imposed on Mila with reference to items d, g, and i in paragraph 2 of article 28 of the Electronic Communications Act, to provide at wholesale terms, hosting of equipment of other electronic communications companies and access to other facilities necessary for bitstream access to be fully used and to serve the intended purpose, including, connections from Mila connection point to the connection points of wholesale purchases and related equipment.

2033. Pursuant to item f in paragraph 2 of article 28 of the Electronic Communications Act, it may be required that a company with SMP offers access to operations systems or analogous software in order to ensure competition in the offer of service and according to item i it may

²⁴⁸ <http://www.ietf.org/rfc/rfc2236.txt>

²⁴⁹ <http://www.ietf.org/rfc/rfc2326.txt>

be required that an electronic communications company with SMP provide access to other critical facilities. With reference to these authorisations, the PTA obliges Mila to provide access to support systems and information necessary the purchaser's utilisation of bitstream access. Such access can among other things be:

- a) Operational support
- b) Database to gather information before an order is made.
- c) Delivery.
- d) Orders.
- e) Maintenance.
- f) Handling of faults.
- g) Invoicing.

2034. In Section 11.2 here above, competition problems related to the relevant market are explained. There, and in Section 9 with regards to designation of an electronic communications company as having SMP, is stated among other things that the Mila position is very strong on the relevant market and on the related Market 3a. The Mila position is furthermore very strong on terminating segments of leased lines in this country. The Siminn position is furthermore extremely strong on downstream retail markets for broadband service. Siminn has up to this point in time almost exclusively used the Mila bitstream service on the residential market²⁵⁰. Several other service providers do this as well, e.g., Nova and Hringdu, with respect to connections in the countryside, among other things in the Tengir operational territory in North Iceland.

2035. Mila has leased fibre-optic local loops from Tengir in North Iceland and connected its bitstream equipment on them, in addition to deploying a parallel fibre-optic network, step-by-step. The same can be said about most small countryside networks, the majority of which have been deployed with state aid, i.e., those that Mila has not already purchased. As is by far the largest retailer in the country, Siminn has up to this point in time not provided service on bitstream systems of parties other than Mila on the residential market²⁵¹, as do more service providers at some locations that use the Mila bitstream system, the PTA considers it important that Mila should not withdraw that equipment and that service while such a situation pertains. The PTA therefore imposes on Mila the obligation to not withdraw its bitstream equipment or service from the fibre-optic networks of other network operators than Mila, from whom Mila has leased dark fibre against the wishes of the network operators in question, while Siminn does not provide service over bitstream systems of such operators. Such an obligation is for the benefit of competition on the relevant market and related markets and is conducive to maintaining or increasing options for service providers and consumers with respect to choice of underlying electronic communications network. To prevent such parties from being able to increase the charges that Mila needs to pay for such access in an abnormal manner, Mila can refer the question to the PTA about whether their charges or conditions are fair and normal. The PTA decides such a matter with a decision. If the PTA considers price or other conditions

²⁵⁰ In July 2020, Siminn made an agreement with GR on bitstream access to the GR fibre-optic network. Siminn commenced providing service over the GR network in late august 2021.

²⁵¹ In July 2020, Siminn made an agreement with GR on Bitstream access to the GR fibre-optic network Siminn commenced providing service over the GR network in late august 2021. For some considerable time, Tengir has endeavoured to have Siminn lease bitstream access to the Tengir fibre-optic network, but without success.

set by the parties in question to be abnormal, Mila is free of this obligation, should they not comply with the PTA decision. The PTA then reminds that Mila is also free of this obligation, if Siminn makes an agreement with the parties in question for bitstream access to the fibre-optic networks of the parties in question.

2036. Mila has furthermore not provided its bitstream service on the Tengir parallel fibre-optic network in Húsavík. This means that consumers in Húsavík that purchase service from Siminn do not have the option of connecting to the Tengir fibre-optic network in that town, while Siminn does not connect to the Tengir fibre-optic network. The danger is that this development can continue at other locations where Tengir and Mila deploy parallel fibre-optic networks. The PTA therefore imposes an obligation on Mila to connect its bitstream equipment with Tengir fibre-optic local loops, and with those of other network operators that may be in the same position as Tengir should the relevant party so request, given that the network operators in question pay the cost of such installation and a reasonable additional operating cost which may be created for Mila by this, while Siminn does not connect the fibre-optic system of the network operators in question in a specific area. The PTA can decide what is reasonable start-up and operational costs shall be in such instances, should it be disputed between the parties.

2037. Applications sent electronically for local access and related facilities shall be processed by Mila as quickly as possible. Mila is unauthorised to give its departments and related companies priority in handling at the cost of other electronic communications companies. Denial of access shall be sent electronically and shall contain grounds for the decision. The grounds must contain all information required to enable assessment of the justification of the denial. Applications for access shall have access equal to that of companies within the Siminn Group to the Mila service system for the purpose of tracking their applications and also for information on maintenance and repair of local loops and on invoicing.

2038. In order to support increased efficiency in the provision of wholesale bitstream service, Mila shall be authorised, with prior endorsement from the PTA, to withdraw the offer of Access Option 1 for specific geographic areas where Access Option 2 is a more economic option. If the efficiency of this changed arrangement is a result of a request by an electronic communications company for access to the Mila system (Access Option 1 or 2), the electronic communications company's request must be fair and normal. The same can be said about the Mila request to the PTA to withdraw service through Access Option 1 because of the availability of Access Option 2 in the area in question. Should Mila request to withdraw the offer of Access Option 1 in specific areas, this change in system topology shall be submitted to consultation with stakeholders. Mila shall notify those who use Access Option 1 on such a plan with adequate notice which shall not be shorter than 6 months. Mila shall endeavour to make arrangements for such a party not to suffer significant financial damage or discomfort. Access Option 2 shall fulfil all of the same requirements that are made to Access Option 1 with respect to service offer, quality control, multicast, communications protocols etc.

2039. Those obligations that now rest on Mila for access to the company's bitstream systems shall not cease to apply even though Mila migrates its systems to the next generation of networks, for example if access to VDSL replaces access to ADSL or access by fibre-optic connection instead of an xDSL connection, except when agreement has been reached on the migration process and the party leasing the access is thus prepared to receive a new kind of access instead of the older one when the migration takes place. Should such an agreement not be reached then Mila shall inform parties to the market of all changes to the arrangements of bitstream access that are likely to alter companies' competitiveness on the market with 2 years

notice.²⁵² Deviation may be made from the above period of notice on receipt of advance endorsement by the PTA. If such an exemption is considered normal and reasonable, the PTA will open consultation with stakeholders. If no objections are raised and stakeholders have access to substitutable products, and do not suffer any unnecessary damage when migrating between systems, the PTA will endorse such an exemption. As previously stated, this obligation will not apply in those areas where more competition pertains, which represents 17 municipalities where about 70% of the population lives. List of these municipalities where lighter obligations will apply, will be revised annually. Next, at the beginning of 2022.

2040. Should Mila make changes to its systems it is important that:

- System downtime should be at a minimum for those wholesale customers operating on the relevant market segment.
- Costs resulting from the migration should not be so great as to act as an entry barrier to what results from the migration.
- An integrated process for transferring all parties should be in place with care taken to ensure non-discrimination between all parties on the market.
- The time taken for migration should be at a minimum given the type and scope of the application.
- There should be a service agreement and a list of key performance criteria to ensure the efficiency of the migration procedure, unless there are indications that such is unnecessary or is not cost-effective.

11.7.1.1 Conclusion on access

2041. With the authority in article 28 of the Electronic Communications Act, the PTA plans to impose an obligation on Mila to accede to all normal and reasonable requests from other electronic communications companies for central access, see definition of service Market 3b. The access here in question is on the one hand to bitstream on the upper frequency range of copper local loops (ADSL, VDSL and SHDSL) for the purpose of enabling other electronic communications companies to provide their users with access to various kinds of broadband service. Bitstream access shall be offered with at least the following quality definitions:

- First, access that uses significant bandwidth but without any quality definition (e. best effort) for general Internet service.
- Second, access that uses little bandwidth but makes high-quality requirements for fixed telephony services over IP (VoIP).
- Third, access that uses significant bandwidth and makes high-quality requirements for TV distribution and video over IP (IPTV, VoD) where among other things multicast is used and the appropriate communication protocols.

²⁵² Commission recommendations of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) page 43.

2042. Mila should also, if this is requested, handle the sending of bitstream through its backbone network to a location where the electronic communications company in question has a connection with the Mila network.

2043. Electronic communications companies shall have the possibility to deliver bitstream at various locations in the network and shall have the option of changing possibilities for delivery as required:

- In DSLAM or equivalent equipment at the place where the copper local loops connect to the telephone exchange distribution frame and/or telephone exchange fibre-optic distribution frame, street cabinet or other equipment space. (Access Option 1)
- By ATM/IP transit in the Míla trunk line network, i.e. where Míla handles transit of signals from DSLAM and/or fibre-optic distribution frame to the connection point of another electronic communications company with and ATM/IP trunk line network. (Access Option 2)
- After transmission with ATM/IP on the Míla/Siminn network to the connection point of another electronic communications company with the latter network. (Access Option 3)

2044. Mila is obliged to provide hosting of equipment of other electronic communications companies and access to other facilities necessary for the bitstream access to be fully used and serve the intended purpose, including connections from Mila connection points to connection points of wholesale purchasers and the related equipment.

2045. Míla. shall also provide access to support systems and information necessary for bitstream access to be useful for the purchaser, and to the same kind of service units used by Siminn. Such access can among other things be in the form of operational support, a database to gather information prior to orders being made, delivery, orders, maintenance, handling of faults and invoicing.

2046. Those obligations that now rest on Míla for access to the company's bitstream systems shall not cease to apply even though Míla. migrates its systems to the next generation of networks, for example if access to VDSL replaces access to ADSL or access by fibre-optic connection instead of an xDSL connection, except when agreement has been reached on the migration process and the party leasing the access is thus prepared to receive a new kind of access instead of the older one when the migration takes place. Should such an agreement not be reached then Míla shall inform parties to the market of all changes to the arrangements of bitstream access that are likely to alter companies' competitiveness on the market with 2 years' notice. Deviation may be made from the above period of notice on receipt of advance endorsement by the PTA. If such an exemption is considered normal and reasonable, the PTA will open consultation with stakeholders. If no objections are raised and stakeholders have access to substitutable products, and do not suffer any unnecessary damage when migrating between systems, the PTA will endorse such an exemption. This obligation shall apply in those 17 municipalities where more effective competition pertains.

2047. In order to support increased efficiency in the provision of wholesale bitstream service, Mila shall be authorised, with prior endorsement from the PTA, to withdraw the offer of Access Option 1 for specific geographic areas where Access Option 2 is a more economic option. If the efficiency of this changed arrangement is a result of a request by an electronic

communications company for access to the Mila system (Access Option 1 or 2), the electronic communications company's request must be fair and normal. The same can be said about the Mila request to the PTA to withdraw service through Access Option 1 because of the availability of Access Option 2 in the area in question. Should Mila request to withdraw the offer of Access Option 1 in specific areas, this change in system topology shall be submitted to consultation with stakeholders. Mila shall notify those who use Access Option 1 on such a plan with adequate notice which shall not be shorter than 6 months. Mila shall endeavour to make arrangements for such a party not to suffer significant financial damage or discomfort. Access Option 2 shall fulfil all of the same requirements that are made to Access Option 1 with respect to service offer, quality control, multicast, communications protocols etc.

2048. The PTA imposes on Mila the obligation to not retract its bitstream equipment or service from the fibre-optic networks of other network operators than Mila, from whom Mila has leased dark fibre against the wishes of the network operators in question, while Siminn does not provide service over bitstream systems of such operators. To prevent such parties from being able to increase the charges that Mila needs to pay for such access in an abnormal manner, Mila can refer the question to the PTA about whether their charges or conditions are fair and normal. The PTA decides such a matter with a decision. If the PTA considers price or other conditions set by the parties in question to be abnormal, Mila is free of this obligation, should they not comply with the PTA decision. The PTA then reminds that Mila is also free of this obligation, if Siminn makes an agreement with the parties in question for bitstream access to the fibre-optic networks of the parties in question.

2049. The PTA therefore imposes an obligation on Mila to connect its bitstream equipment with Tengir fibre-optic local loops, and with those of other network operators that may be in the same position as Tengir, if Tengir or the relevant electronic communications company so requests, given that the network operator in question pays the cost of such installation and a reasonable additional operating cost which may be created for Mila by this, while Siminn does not connect the fibre-optic system of the network operators in question in a specific area. The PTA can decide what is reasonable start-up and operational costs shall be in such instances, should it be disputed between the parties.

2050. Applications sent electronically for bitstream access and related facilities shall be processed by Mila as quickly as possible. Mila is unauthorised to give its departments and related companies priority in handling at the cost of other electronic communications companies. Denial of access shall be sent electronically and shall contain grounds for the decision. The grounds must contain all information required to enable assessment of the justification of the denial. Applications for access shall have access equal to that of companies within the Siminn Group to the Mila service system for the purpose of tracking their applications and also for information on maintenance and repair of local loops and on invoicing.

11.7.2 Obligation for non-discrimination

11.7.2.1 In general, on obligations

2051. Pursuant to article 30 of the Electronic Communications Act, the PTA can impose obligations on electronic communications companies designated with significant market power to practise non-discrimination when agreeing to interconnection or access. Such obligations should particularly ensure that electronic communications companies make the same conditions to other companies that provide electronic communications services for the same

kind of transactions and should provide service and information with the same conditions and the same quality as it provides to its own service department, subsidiaries, or collaborators.

2052. The provision on non-discrimination in article 30 of the Electronic Communications Act is in two parts. On the one hand the PTA can impose obligations on a company with SMP for non-discrimination when agreeing to interconnection and access, that is to say practise non-discrimination between unrelated electronic communications companies. On the other hand, the obligations shall ensure that the company make the same conditions to unrelated electronic communications companies in analogous transactions as it makes to its own service providers or other related parties.

2053. In order for this to be successful, the obligation to grant access must be imposed together with an obligation for non-discrimination. The non-discrimination obligation is intended to prevent a vertically integrated undertaking with SMP from engaging in practices that have a negative impact on competition. It is intended to prevent such an undertaking from discriminating, for example with regard to price and quality of service, that is selling less expensive and better services to its own retail departments than to other parties. Fair, moderate and justifiable conditions for access, including price are basic issues when striving to strengthen competition. The obligation for non-discrimination does not mean that all companies are subject to exactly the same conditions but rather that all difference in conditions is based on objective criteria.

2054. Significant market power on the market for central access provided at a fixed location (Market 3b) can lead to a company discriminating against parties that require the service, should the obligation for non-discrimination not be imposed. It could tend to sell to unrelated parties at a higher price than to its own departments and to other related parties. In order for the non-discrimination obligation to have the desired effect, it is often necessary to impose an obligation to practise separation of accountancy as well.

2055. Even though companies have been assured central access at the same price as related parties, Mila could try to discriminate on other grounds and in this way increase costs for the Siminn Group competitors in order to cause them problems and even push them out of the market. Such practices could for example be in the form of varying quality of service, differing service offers between related unrelated parties, varying processing of applications, inadequate information to unrelated parties (among other things on new service and/or planned distribution networks), unreasonable conditions for agreements and demands that other unrelated service is purchased at the same time.

2056. In the opinion of the PTA, the obligation for transparency is conducive to tackling those problems that arise in connection with discrimination with respect to price, quality, work procedures for processing requests for connections, installation of connections and conditions for access, both with regards to horizontal and vertical competition problems. As an example of varying quality, one could mention variations between the Siminn Group service departments and other companies with respect to duration of delivery of connections. Non-discrimination can also be manifest in variations in prices, variations and work procedures when processing requests for connections and installation of connections, depending on whether the underlying electronic communications network belongs to Mila or to another network operator, and/or conditions for access to information systems and that parties are provided with access to systems that vary with regards to age and capacity.

2057. The information gained by Mila from other companies when making agreements for access, or completion of agreements, shall solely be used for the purpose provided for and shall at all stages be treated as confidential. It is unauthorised to supply information from related or unrelated parties, see among other things article 26 of the Electronic Communications Act no. 81/2003.

2058. The PTA intends to maintain the obligation on Mila to respect non-discrimination vis-à-vis all electronic communications companies' copper or fibre-optic local loops. All purchasers of such service shall, having taken circumstances into account, use the same conditions (including prices) that apply for related parties or those cooperating with Mila. The PTA also intends to add an obligation to this Siminn Group, that it withstands and ERT test with respect to Mila and Siminn, fibre-optic products.

2059. Mila provides first and foremost bitstream access through copper and fibre-optic local loops of its own company, but however provide such service through the fibre-optic networks of other network operators such as e.g., Tengir in North Iceland and smaller local networks. The Mila bitstream unit is not authorised to discriminate in any manner by underlying network with respect to price or other possible charges, processing of work requests with respect to connection or configuration of equipment. The Mila bitstream unit shall thus process requests about connections and configuration of connections through fibre-optic networks of unrelated parties in the same manner as with its own local loops. Costs, delivery times, complexity and inconvenience vis-à-vis service providers and/or end users shall be the same. Mila is unauthorised to assume that Mila local loops are default choice for an underlying local loop when a request for connection comes from a sales representative of another network operator or service provider or if an end user requests that a local loop from an unrelated party be the underlying network.

11.7.2.2 Equivalence of input

2060. The PTA makes the requirements that quality of access provided to unrelated parties be no less than that of services provided by Mila to related parties. The PTA plans to maintain the Equivalence of Input (EoI) obligation on Mila. The PTA considers that this obligation is more useful for ensuring complete non-discrimination than what is called the Equivalence of Output (EoO) obligation, and this obligation has furthermore been in force vis-à-vis Mila since 2014 and therefore it should therefore not be unnecessarily burdensome to continue to work according to that obligation.

2061. Equivalence of Input means that Mila is obliged to offer the same price, use the same service procedures/service systems, the same time limits and to publish the same information about the service (among other things development and distribution information) to related and unrelated customers. In this way unrelated customers receive access to the same information, the same delivery and ordering service and receive the same treatment within the same time limits as related parties. The same applies to notification of faults and solutions and access for the staff of the unrelated party to Mila's information systems which are used for service to end users. Mila shall therefore continue to provide access to its customers to those systems that are used within the Siminn Group and that are necessary in connections with central access.

11.7.2.3 Equal access to information, impact on development of product offer and equal service time

2062. Information on central access and related service shall be equally accessible to other electronic communications companies as to related parties. The PTA considers it particularly important that Mila does not have the opportunity to discriminate in an irregular manner between related and unrelated parties with respect to innovations on the market.²⁵³ As related retail markets are in continuous development, unrelated parties need to be certain that the appropriate wholesale products are available with adequate notice in order that they can offer new, improved and less expensive retail service (for example more capacity in Internet access) at the same time as parties related to Mila. The PTA plans to maintain those obligations on Mila that unrelated parties be informed about deployment, enlargement or other development of networks and central access to Mila (and related service and other significant innovations) with the same notice as parties related to Mila. This notice shall under no circumstances be shorter than three months.

2063. Information shall among other things contain planned prices, conditions, technical specifications, scheduled distribution plans, updated position on distribution and planned connection points. Such information is particularly important with respect to migration from ADSL to VDSL and with respect to distribution of bitstream through fibre-optic local loops. Related parties may thus not receive the information in question before unrelated parties. Mila shall give related and unrelated parties the opportunity to influence development of new wholesale products and planned interfaces. Mila may not refuse to develop new service at the request of an unrelated party simply because a related party has not requested such service. Such a request by an unrelated party shall however be reasonable and normal.

2064. A VDSL system operator can secure a 3-month priority right to street cabinets by publishing its deployment plans and by notifying the PTA about plans. The purpose of this is to assure the interests of the party that first shows willingness to invest and develop a VDSL access network and to increase market interest in such investment. The obligation described here above that rests on Mila for provision of information on its deployment plans gives the company also that three-month priority rights on VDSL development in those street cabinets that the company's deployment plans cover.

2065. Mila shall take care that applications from unrelated electronic communications companies for potential central access and related services should be processed in as timely manner as those of related parties. Should there be a problem in processing an application, this shall immediately be notified to the applicant in writing or in an electronic manner and reasons shall be provided for the delay. Mila is not authorised to make unreasonable demands on the applicant as a condition for processing the application.

11.7.2.4 Service level agreements and quality assurance

2066. The PTA requires that Mila make service agreements with all purchasers of local access and access where among other things the quality of service shall be prescribed and issues relating to non-discrimination as itemised in the obligations that the PTA plans to impose on Mila on the relevant market. These are Service Level Agreements (SLA). Such agreements shall cover the various service issues that relate to central access, including orders, delivery, service access, transfer of service and repairs. The service agreements shall also among other

²⁵³ Unjustified first mover advantage.

things prescribe how mutual interference of signals will be avoided between parties on the Mila local loops. They shall furthermore prescribe efficient and economic procedures with respect to service switching at wholesale, that is to say when a Mila counterparty decides to transfer from one service to another at Mila. In order to ensure non-discrimination and transparency with respect to quality in Mila central access, the PTA plans to prescribe that all service level agreements shall be published on the Mila website. Such agreements can among other things be part of a reference offer. Parties can consult with the PTA on the making of such agreements and the PTA can rule on matters of contention when making these agreements. Service level agreements can vary between parties, depending on the wishes of Mila counterparties. Mila shall however respect the non-discrimination obligation and for this reason it is important that all such agreements are published.

2067. In addition to the obligation to make service level agreements the PTA intends to maintain the obligation on Mila to issue a specific declaration on quality guarantees (Service Level Guarantees (SLGs)). Such service level guarantees cover all necessary service issues that relate to the central access including orders, delivery, service access, transfer of service and repairs. Such service level guarantees shall among other things prescribe specific fines which Mila must pay to its counterparties should the service level guarantee not to be honoured. In this instance it could be that a specific amount is paid for each day that for example delivery or repair exceeds the time-limit prescribed by the SLG. Such provisions for fines should be objective, simple and unequivocal such that the parties should not need to resort to the PTA or to the courts for interpretation. Mila shall ensure that interested electronic communications companies be informed of the content of the service level guarantee.

11.7.2.5 Technical replicability test

2068. In order to ensure that Mila fulfils the obligation in question the PTA can perform a technical investigation as to whether unrelated parties can replicate the product offer of related parties in a sustainable manner (technical replicability). Should the PTA conclusion be such that unrelated parties cannot replicate the product offer of related parties for technical reasons, the PTA can order the Mila to change its product offer and/or offer new wholesale products such that unrelated parties can replicate the product offer of related parties with normal commercial criteria.

11.7.2.6 Economic replicability test with respect to central access provided over fibre-optic local loops

2069. In order that non-discrimination is respected between the Siminn Group and competitors on downstream markets, it is necessary that the Siminn Group pricing of wholesale service and service on downstream markets, including Siminn retail, is such that there is a sufficient gap between the price at varying levels of the value chain, in order that it is possible for competitors that purchase procurements from Mila to offer competitive prices on downstream markets in an economically advantageous manner. To ensure non-discrimination between parties in this respect, the PTA will impose an obligation on Mila and Siminn that they withstand what is called an Economic Replicability Test (ERT), which will be conducted regularly and/or as circumstances require, as will be further prescribed in a separate decision on elaboration and execution of the test.

2070. It is necessary that this obligation apply to both Mila and Siminn, as both companies must provide information in the execution of the test and if they do not pass the test, it could

mean that either of them, or both of them will be obliged to change their pricing. The PTA considers there to be full authority to direct this obligation at both companies, as they constitute together a single economic unit in the understanding of competition law and of this market analysis, i.e., the Siminn Group. Then there is the fact that many of the problems that have been identified on the relevant market result from vertical integration of these companies, from their joint market power and the behaviour of each of them individually or in a concerted manner.

2071. This obligation will be directed at central access provided on fiber-optic local loops owned or operated by Mila, as well as on fibre-optic networks owned by third parties where Mila leases black fibre and installs its bitstream equipment, and the Siminn Group's services on related retail markets where the said bitstream service is used. When this obligation is applied, prices of the relevant wholesale service are not cost analysed in advance. Under certain conditions, it is considered justifiable to overlook the obligation for linking cost to price and to apply instead an ERT obligation, which generally is considered to be categorised as an obligation for non-discrimination. In Section 11.7.5.6, there is a more detailed explanation of the reasons behind the PTA decision not to apply an obligation for cost analysed prices, with respect to central access to Mila fibre-optic local loops, as was planned in the preliminary draft, and to choose instead an obligation for the Siminn Group to withstand an ERT test.

2072. The imposition of obligations for an ERT test is part of monitoring that the obligation for non-discrimination is complied with. The obligation intends to ensure that a competitor on the market have the same possibilities as the network operator to offer service on downstream markets, including Internet service package at retail level as the price for carbon compete with the retail arm of the network operator. In a new EU directive on electronic communications, 2018/1972 EU there is a mention of ERT in sub paragraph 3 of paragraph 1 of article 74, which discusses price control, where it says on the other hand that an ERT test can be applied pursuant to article 70, an article that deals with the non-discrimination obligation. It appears therefore to be generally considered that an ERT test is part of non-discrimination obligation. An ERT test constitutes on the other hand a kind of monitoring of tariff and the PTA considers it therefore appropriate to refer both to article 30 of the Electronic Communications Act (non-discrimination) and to article 32 (on price control) with respect to the legal grounds of an obligation for an ERT test.

2073. The purpose of the ERT test is to monitor that there is not an abnormally small difference in the wholesale price of central access to fibre-optic local loops and the price of the Siminn Group, for service on downstream markets, particularly Mila bitstream service and the main Siminn retail offers, such that competitors cannot emulate it. The PTA plans to commence preparations of a decision on the elaboration, adoption and execution of an ERT test at the same time as a decision on obligations subsequent to this market analysis has come into force.

2074. The PTA will consult with stakeholders on the elaboration and adoption of the test, and it is clear that the PTA will base this on the Commission recommendation 2013/466/EU and the BEREC guidelines on ERT test from 2014 when the factors that the test will take into account are defined. The obligation to be submitted to an ERT test and to provide all necessary information will rest on Mila and Siminn, as previously stated.

2075. In the EU Commission recommendations 2013/466/EU on the application of non-discrimination and price control obligations with respect to next generation networks²⁵⁴, there

²⁵⁴ COMMISSION RECOMMENDATION of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU)

is detailed discussion on the conditions for applying an ERT test instead of price control and there is a description of how such a test should be conducted. In the following paragraph there is discussion on the main emphases of the recommendations with respect to the implementation of an ERT test.

2076. In order to reveal how competitors could economically emulate the service offer of the network operator on the downstream production level, with the regulated wholesale access that was on offer, in those instances where an obligation for cost analysed prices was not in place, NRAs should perform an economic replicability test (ERT). This was with the intention of ensuring that a company with SMP did not abuse freedom in pricing to keep competitors from the market.

2077. With the test, it should be ensured that the gap between the retail price of a company with SMP and the price for NGA wholesale access was adequate to cover downstream additional costs along with a fair share in shared costs. Technical and/or Economic replicability is not considered to be in place if the retail arm of the network operator cannot operate the relevant retail service at a profit on the basis of the wholesale price that competitors are offered. This was on the premise that competitors enjoyed the same efficiency as the network operator.

2078. In the event of special circumstances pertaining on a market, such that if the entry and growth of a competitor had been unsatisfactory, the NRA could make changes to the test criteria, such that the cost of the network operator would be examined on the basis of efficiency that one might expect competitors to enjoy.

2079. NRAs should be subsequent to market analysis, define and publish in a decision, the case procedure and the criteria that it intended to apply when conducting the test. It would be possible to conduct the test before a new retail service from the network operator was put on the market, e.g., at the same time as a technical replicability test. The test would not have to be conducted for all retail services that were put on the market, but rather only for what are called “flagship” services, which were the most important retail products on the market on the basis of market share, quantity and value, that were based on access to an NGA network and that included broadband service. It could also be appropriate to conduct the test immediately subsequent to the decision that authorised free pricing of fibre-optic, or when there were changes on the market.

2080. ERT tests should be defined in advance and the definition should include a number of specific key issues in order to ensure foreseeability and transparency. An LRIC+ model should be used when examining a network operator's costs at downstream production level and the gap should be assessed between the relevant retail product and the wholesale access that would be most used or that one could assume to be most common during the period of validity of the decision. If new access services were introduced and became common, then it might be necessary to replace the access service that was used in the test. If there was a difference in conditions between areas, then it could be necessary to adapt the test geographically.

2081. BEREC and the Commission were jointly assigned the task of monitoring the effects of their recommendations, particularly on investments, competition and retail price, and provide NRAs with further instructions on their implementation.

2082. A decision on applying an ERT test instead of an obligation for cost analysis should contain a description of the content of the ERT test, and this description should contain as a minimum:

- (i) relevant downstream cost that should be taken into account.
- (ii) relevant cost standard.
- (iii) relevant regulated wholesale inputs are relevant reference prices.
- (iv) relevant retail products.
- (v) relevant time period.

2083. It should furthermore prescribe case procedure, including that the NRA could commence the test at its own initiative or at the request of a third party, at any time, but no later than three months after the relevant retail service came onto the market. The test should be completed as quickly as possible and no later than four months after case procedure commenced.

2084. The measures to be taken if the relevant company did not pass the ERT test should be described.

2085. BEREC published a guidance document on conducting an ERT test in 2014.²⁵⁵ In the document, one can find among other things, a more detailed elaboration of the main rules given in an appendix to the above specified commission recommendations from 2013. (2013/466/EU).

2086. In a document, one can find explanations of various aspects of the ERT test that are not fully explained in the recommendations, for example depreciation methods, reasonable profit, relationship between use by average user and price, treatment of temporary offers and discounts and geographic segmentation. There is discussion on criteria with respect to economy of scale, as NRAs need to decide the extent of economy of scale of a network operator that should be applied when downstream cost is assessed, and in this context, there are three main options:

- Equally efficient operator (EEO) – on the assumption that the network operator has the same economy of scale on a downstream market as the SMP operator, where the costs of the SMP operator is used and determined from his bookkeeping.
- Reasonably efficient operator (REO) – on the assumption that the network operator does not have the same economy of scope as the SMP operator. It is assumed that a new entry to the market will in the fullness of time achieve full economy of scale.
- Adjusted equally efficient operator (adjusted EEO) – on the basis of costs of the SMP operator where the costs are then adapted to a smaller market share.

2087. In the document, one can also find discussion on the main methods that the NRAs were already applying when conducting margin squeeze tests.

2088. If Mila and Siminn at any point in time, do not pass an ERT test that has been introduced, and do not mitigate the shortfalls without delay, for example by Siminn increasing retail price or Mila reducing wholesale price, or breach the EoI obligation, one can expect that

²⁵⁵ BEREC Guidance on the regulatory accounting approach to the economic replicability test (i.e. ex ante/sector specific margin squeeze tests) BoR (14) 190.

the PTA will have to make a decision on more stringent obligations, such as cost analysed prices on fibre-optic local loops.

2089. Mila is obliged to send information annually to the PTA on investments and distribution plans, with respect to NGA networks, in order for it be possible to monitor development of the investment environment and competition conditions.

2090. The implementation of monitoring and publishing of results of performance with respect to an ERT test will be further prescribed in a separate decision on the implementation of the ERT test, which will be conducted subsequent to statutory consultation procedure.

11.7.2.7 Measurement of key performance indicators and publication of results

2091. In order to ensure that Mila respects the obligation for non-discrimination that is intended to be maintained on the company for making SLG, the PTA intends to maintain the obligation on Mila that it should collect and publish regularly certain key performance indicators (KPI). There is discussion on the necessity for publishing such information in the BEREC document on the relevant market from December 2012²⁵⁶ and in the ERG document on obligations²⁵⁷. The key issues mentioned are in this instance delivery of orders, delivery of service, service availability, switching of service and maintenance. In this way Mila's counterparties can compare the service they receive together with the service received by companies related to Mila on the one hand and with the average in the sector on the other. In this way Mila counterparties can determine whether they are being discriminated against. The publication of conclusions of measurements of key performance indicators will as shown above help in casting light on whether the non-discrimination obligation is complied with, particularly with respect to those factors related to pricing and whether Mila has fulfilled its duty to make adequate service level agreements with its counterparties.

2092. As a minimum Mila shall publish the following key performance indicators as part of key performance assessment.

- Delivery of orders.
 - a. Number of orders delivered.
 - b. Proportion of orders rejected after having been accepted in the ordering system.
- Delivery of products/services.
 - a. Average delivery time.
 - b. Proportion of deliveries at or before time limit.
 - c. Precision of delivery.
- Maintenance.
 - a. Proportion of faults in equipment for which company with SMP is responsible, measured in lines per year.

²⁵⁶ BEREC common position on best practice in remedies on the market for wholesale broadband access (including bitstream access) imposed as a consequence of a position of significant market power in the relevant market, BoR (12) 128.

²⁵⁷ Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework.

- b. Average duration of repair of fault.
 - c. Proportion of fault repairs at or before time limit.
- Service switching.
 - a. Average time for switching from one wholesale service to another.
 - b. Proportion of deliveries at or before time limit.
 - c. Precision of delivery.

2093. The PTA shall monitor whether Míla collects and regularly publishes the above specified key performance indicators for internal transactions on the one hand and external on the other. The PTA considers that the publication of key performance factors is appropriate as the means to monitor compliance with the non-discrimination obligation and with Míla's duty to make service level agreements. For this reason and on the basis of minimum criteria in the BEREC reports, the PTA intends to maintain the obligation on Míla to gather and publish on its website figures for key performance indicators at monthly intervals.

2094. The PTA understands that the obligation in question for collection of data can be onerous for Míla. On the other hand, the PTA considers that measuring these criteria is important for the market and furthermore necessary for Míla in its own operations. Publishing the above specified information is important for a competition on the relevant market and supports compliance with the demand for non-discrimination and that all parties can rely on this compliance.

11.7.2.8 Conclusion on non-discrimination

2095. With the authority of article 30 of the Electronic Communications Act, the PTA intends to maintain the obligation on Míla to respect non-discrimination against all electronic communications companies that purchase local access on a fixed line, regardless of whether it is a copper or fibre-optic network. All purchasers of such service shall, having taken circumstances into account, enjoy the same conditions, including prices, that apply for related parties or those cooperating with Míla. Quality of access provided to unrelated parties shall not be less than quality of access provided by Míla to related parties. The obligation for non-discrimination that the PTA intends to maintain on Míla is for Equivalence of Input which is where the company is obliged to offer the same price, use the same service procedures/service systems, the same time limits and publish the same information about the service to related and unrelated customers. Míla shall therefore provide unrelated parties with access to those systems that are used within the Siminn Group and that are necessary in connection with central access.

2096. The Míla bitstream unit is not authorised to discriminate in any manner by underlying network with respect to price or other possible charges, processing of work requests with respect to connection or configuration of equipment. The Míla bitstream unit shall thus process requests about connections and configuration of connections through fibre-optic networks of unrelated parties in the same manner as with its own local loops. Costs, delivery times, complexity and inconvenience vis-à-vis service providers and/or end users shall be the same. Míla is unauthorised to assume that Míla local loops are default choice for an underlying local loop when a request for connection comes from a sales representative of another network operator or service provider or if an end user requests that a local loop from an unrelated party be the underlying network.

2097. Information on central access and related service shall be equally accessible to other electronic communications companies as to related parties. The PTA plans to maintain the obligation on Mila that unrelated parties be informed about distribution, enlargement or other development of networks and Mila central access services with the same notice as parties related to Mila receive and this notice shall not be shorter than three months. Mila should furthermore give related and unrelated parties the opportunity to influence development of new wholesale products and planned interfaces.

2098. Mila shall take care that applications from unrelated electronic communications companies for potential central access and related services should be processed in as timely manner as those of related parties. Should there be a problem in processing an application, this shall immediately be notified to the applicant in writing or in an electronic manner and reasons shall be provided for the delay. Mila is not authorised to make unreasonable demands on the applicant as a condition for processing the application.

2099. In order to ensure that Mila fulfils the obligation in question the PTA can perform a technical investigation as to whether unrelated parties can replicate the product offer of related parties in a sustainable manner (technical replicability), and should this not be the case, the PTA can instruct Mila to change its product offer.

2100. The PTA plans to impose a new non-discrimination obligation on Mila and Siminn, which is an obligation for withstanding what is called an economic replicability test (ERT). The obligation will apply for central access to fibre-optic local loops owned by or under long-term control of Mila, as well as on fibre-optic networks owned by third parties where Mila leases black fibre and installs its bitstream equipment, and the Siminn Group's services on related retail markets where the said bitstream service is used. The obligation is intended to ensure a normal gap between price at wholesale level and price on downstream markets and to thus enable competitors on the downstream markets in question to compete on a level playing field, such that they can in an economically efficient manner replicate the main service offer of the Siminn Group. The obligation is not fully elaborated in this analysis, but the PTA will commence work on the separate decision on elaboration and introduction of the ERT test when the decision on obligations subsequent to this analysis has come into force.

2101. The PTA plans to impose the obligation on Mila to make service level agreements (SLAs) with all purchasers of central access. Such agreements shall cover the various service issues that relate to central access including orders, delivery, service access, transfer of service and repairs. All service level agreements shall be published on the Mila website.

2102. In addition, the PTA intends to maintain the obligation on Mila to issue a specific declaration on quality guarantees (Service Level Guarantees (SLG)). Such service level guarantees shall cover all necessary service issues that relate to non-discrimination in central access, including orders, delivery, service access, service switching and maintenance. Such service level guarantees shall among other things prescribe specific fines which Mila must pay to its counterparties should the service level guarantee not to be honoured. Mila shall inform interested electronic communications companies about the content of the service level guarantee.

2103. Furthermore, the PTA intends to maintain obligation on Mila that the company gather and regularly publish specific key performance indicators, including criteria that relate to processing of orders, delivery of service, maintenance services and service switching - for

internal transactions on the one hand and external on the other. Mila shall publish the information in question on a monthly basis.

2104. The information gained by Mila from other companies when making agreements for access, or completion of agreements, shall solely be used for the purpose provided for and shall at all stages be treated as confidential. It is unauthorised to supply information from related or unrelated parties, see article 26 of the Electronic Communications Act.

2105. The PTA believes that the demand for non-discrimination is both reasonable and normal. There is no indication that it creates significant costs or inconvenience for SMP operators, given the advantages that the obligation brings to competition. The PTA therefore considers it necessary to strengthen competition on the market for central access, including access and on downstream markets, by imposing obligations on non-discrimination which cover at least the above specified aspects.

11.7.3 Obligation for transparency

2106. Pursuant to paragraph 1 of article 29 of the Electronic Communications Act, the PTA can oblige electronic communications companies with significant market power to publish specific information in order to increase transparency of interconnection or access to the facilities of an electronic communications company, for example bookkeeping information, technical information, information on the characteristics of networks, terms and conditions for delivery and on usage and on tariffs. It is authorised to make an exemption to the publication of information if an electronic communications company can show that it concerns important financial or business interests that it is fair and normal to keep confidential.

2107. In paragraph 2 of article 29 of the same Act it states that when an electronic communications company is obliged to practice non-discrimination then the PTA can demand that it publishes a reference offer that contains a breakdown description of interconnection or access, along with terms and conditions, including tariff. The PTA can prescribe amendments to the reference offer and is authorised to impose rules on the content of such offers.

2108. Transparency of terms and conditions for interconnection and access to facilities, including price, served the purpose of expediting agreement negotiations, prevents disputes and supports belief among parties to the market that there is no discrimination in provision of services. It is necessary that technical provisions that applied to central access are clear and transparent which can be particularly important in ensuring operational compatibility.

2109. A reference offer should give all parties to the market the opportunity to see which is on offer and the description of service shall be broken down into units depending on the needs of the market to ensure that companies will not be required to pay for service and facilities for which they have no need. Mila has published a reference offer for bitstream access, see obligations from previous market analysis. The PTA plans to maintain an obligation on Mila for publication of a reference offer for central access and related service. The PTA intends to commence a review of the reference offer for central access provided at a fixed location in accordance with obligations imposed in this instance and in the light of new definitions of the relevant market and new obligations that the Administration intends to impose on Mila.

2110. Mila shall maintain and update the existing reference offer as needed²⁵⁸, for central access provided at a fixed location in wholesale. The reference offer shall be broken down, as a minimum in accordance with the list of items here below and shall be in accordance with the discussion here above on transparency of conditions. It is important that Mila upgrade its reference offer regularly with respect to technical development and market needs having taken into account considerations of the company's related and unrelated customers. The reference offer and amendments shall be submitted to the PTA for endorsement before publication. Publication on the Mila website is deemed adequate.

2111. In the updated reference offer Mila shall among other things publish work procedures that describe how the company treats applications for access to new services on existing networks. New service among other things refers to increased speed and shorter maintenance time than has been the practice to date. The work procedures shall among other things specify how such requests shall be made and in what form, information that is necessary for Mila to assess whether it is feasible to provide the new access and the time window for processing such a request. The main rule is that Mila must process such requests as rapidly as possible. Should Mila reject the new access then the company must justify this in writing. Such a rejection can be referred to the PTA.

2112. With respect to minimum content of a reference offer, the PTA refers to the BEREC guidelines on this issue, which was published in 2019²⁵⁹, and the description that the current reference offer should be based on, see PTA Decision no. 21/2014.

2113. At least the following items shall be specified in the Mila reference offer:

1) Terms and conditions for providing access:

- Description of the network access and virtual access being offered including technical characteristics (which shall contain necessary information on configuration in network equipment to enable the most effective network access).
- Appropriate technical standards for network access (for example for all limitations of use and other security items).
- Appropriate technical description of frequency arrangements and the strength of signals in accordance with international standards.
- Locations where network access is provided.
- Work procedures and conditions that are used for the purpose of gathering necessary data for providing wholesale service on the relevant market.
- Terms, conditions, descriptions, and work processes as regards co-location and sharing.
- Conditions for access to minor, additional, and more complex service (including support systems for operations, IT systems or databases for preliminary orders, stocks, order, maintenance and repair requests and invoicing), including limitation of use and work procedures to gain access to the service.
- Charging, terms of payment and procedures with invoicing.

2) Exact description of procedural rules, for example with respect to:

²⁵⁸ "Reference offer for wholesale bitstream access" with appendices, dated 1 August 2017.

²⁵⁹ BEREC GUIDELINES on the minimum criteria for a reference offer, BoR (19) 238, 5 December 2019.

- Pre-order, order, and delivery of service.
- Migration from older type of service or network, relocation, and end of contract.
- Rules for dividing space between parties where such is limited (for example for co-location or location of electronic communications masts).
- Repairs and maintenance.
- Changes to IT systems (to the extent that they impact on other service providers).
- Description of tests that relate to interoperability between systems.
- Technical characteristics of equipment to be used in the network system and the service that is necessary.
 - Flexible use of virtual channels/virtual networks.
 - Control of performance of end user connections.
 - Access to security factors.
 - Choice of terminal equipment.
 - Access to multicast.
 - Access independent of service.
 - Support for variable service quality with respect to:
 - Delay.
 - Jitter.
 - Packet loss.
 - Contention ratio.

3) Provisions on service level and quality:

- Guarantee of service level (SLA) for order, delivery, supply and uptime service and repairs, including specific timeframe for acceptance or rejection of request for delivery and for completion, testing and delivery of service and facilities for the provision of support services (such as the treatment of faults/defects and repairs).
- Quality standards that each party needs to fulfil to meet contractual provisions, including definition of key performance indicators (KPI) with regards to guarantee of service level where appropriate.
- Guarantees with respect to service level (SLG) for order, delivery, supply and uptime service and repairs, including amounts of compensation one party pays the other in the event of failure to fulfil contractual and conditions for possible liability for compensation.
- Work procedures where a change of service offer is proposed, including notifications of changes to the PTA, for example if a new service is to be established, or alterations to be made to existing service or tariff.

4) General terms and conditions

- All general conditions and conditions for providing network access (such as with respect to duty to inform, non-disclosure, payment insurance, transfer of rights, force majeure, discrepancies, parties representatives and jurisdiction).
- Procedure for resolution of disputes which the parties in question shall apply.
- Description of term and review provisions of agreements.
- Definition and limitation of liability and compensation.
- Definitions of concepts that apply to wholesale access and to other related issues.

11.7.3.1 Conclusion on transparency

2114. With reference to article 29 of the Electronic Communications Act the PTA intends to maintain the obligation on Mila for practising transparency when providing central access on copper and fibre-optic. Mila shall publish information relating to access to central access, for example on registering local loops, technical descriptions, characteristics of networks, terms and conditions for delivery and use and tariff. Part of this obligation was that Mila was to issue a reference offer for central access which fulfils the conditions set by the PTA which shall be maintained and updated as required and submitted to the PTA for revision and endorsement.

11.7.4 Obligation for separation of accountancy

2115. Pursuant to article 31 of the Electronic Communications Act no. 81/2003 the PTA can impose obligations on an electronic communications company with significant market power for separation of accountancy between operations that relate to interconnection or access and other operations in such a manner that it will be possible to allocate all revenue and costs to operational units that can be connected to differing services. In addition to this the Administration can demand of a company that operates both an electronic communications network and electronic communications services that its wholesale prices and prices within the company are transparent, among other things to prevent unjustified subsidies. The PTA can decide which bookkeeping methods are to be used. To ensure transparency and non-discrimination the PTA can demand bookkeeping information, including information on income from third parties.

2116. In Regulation no. 564/2011 on bookkeeping and cost analysis in the operations of electronic communications companies, there is an explanation of the purpose of separation of accountancy and instructions on how it should be implemented. The purpose is among other things to make it possible to see income, costs, and sunk capital for varying operational units and to be able to show that the same conditions apply to services provided to other companies and to services supplied to other departments of the electronic communications company in question.

2117. It is the view of the PTS that it is necessary to impose an obligation on Mila for accountancy separation on the relevant market, among other things to ensure non-discrimination and transparency and to enable light to be shed on real costs where appropriate. This applies both to bitstream service provided over copper and fibre-optic local loops.

2118. The purpose of separation of accountancy is among other things to be able to identify information from bookkeeping to show as exactly as possible the results from various parts of operations as though from separate companies. Separation of costs also limits of Mila's possibilities to charge for costs that are not related to a specific service. It is important that the operation of bitstream access is separated from other operational units to be able to assess its performance with respect to whether pricing of the wholesale service harmonises with cost, whether cross subsidies are taking place between different services and to ensure that all parties are treated equally with respect to price and other conditions. Separation is a prerequisite for being able to determine costs for bitstream access.

2119. With respect to implementation of separation of accountancy it says in Chapter II of Regulation no. 564/2011 that electronic communications companies shall record their bookkeeping in such a manner that it is possible to allocate all revenue and costs to operational

units which can then be linked to various services. Electronic communications companies that operate general electronic communications networks shall separate costs in networks such that it will be possible to equally distribute network costs to varying services, including access to networks. This shall apply equally to access by service departments of the company and by other electronic communications companies to the network. The cost of operating networks and/or services shall be distributed to operational units in with activity-based accounting pursuant to article 7 of the previously referenced regulation and to more detailed rules set by the PTA.

2120. With the authority in article 31 of the Electronic Communications Act the PTA maintains obligations on Mila for separation of accountancy. Such separation shall constitute as a minimum that the operation of bitstream access is separated in the accounts from other operations. The Mila wholesale prices and internal prices within the company shall be transparent, among other things to prevent unjustified subsidies. In its bookkeeping Mila shall separate revenue, costs, assets and liabilities for access to bitstream and to its bitstream service. Mila is obliged to provide the PTA on an annual basis with a breakdown of the operational accounts and balance sheet for its bitstream access with DSL technology on the one hand and fibre-optic on the other, along with a statement of the division of indirect costs that are not possible to assign through comparison with other cost items.

2121. Mila is obliged to provide the PTA on an annual basis with a breakdown of the operational accounts and balance sheet for central access, which shows a division between copper local loops on the one hand and the fibre-optic on the other, along with a statement of the division of indirect costs that were not possible to assign through comparison with other cost items. Mila was furthermore obliged to submit to the PTA separate profit and loss and balance sheet accounts for access to facilities (hosting).

2122. Pursuant to article 25 of Regulation no. 564/2011, Mila shall submit to the PTA, the company's annual financial statements along with an itemised profit and loss account for the company's service components that relate to obligations for separation of accountancy. The accounts shall contain the following:

- The endorsement of a chartered accountant.
- The board's report.
- Separated profit and loss accounts.
- Settlement and reconciliation of internal sales.
- Reconciliation against the company's annual financial statements.

2123. Pursuant to article 24 of Regulation no. 564/2011 Mila shall annually prepare a report on bookkeeping arrangements. The report shall contain among other things the following:

- Accountancy rules.
- Rules for the division of costs and revenue.
- Information on rules concerning internal transactions.
- Description of calculation methodology.
- Information on sizes and quantity figures, other than financial.

- A list of products, services, activities, and network components.
- Rules on assessment of assets and depreciation.

2124. With reference to the above Míla, shall furthermore provide the Administration with the following information and data on the operation and balance sheet for the company's bitstream services for the year 2021 and then annually while the obligation for separation of accountancy is in force on the company. There should be separation between access with xDSL technology on the one hand and fibre-optic on the other.

- Separate profit and loss account for Siminn's bitstream services along with a statement of the division of indirect costs. The consolidated profit and loss statement for operational divisions shall reconcile with the base on which the cost analysis is grounded.
- The minimum itemisation in the profit and loss account shall be the following:
Breakdown of revenue and expenditure, on the one hand according to the general ledger accounts of the company's financial accounts and on the other hand a breakdown in the same manner as the Míla financial accounts system does for individual sub-accounts. There shall be a particularly clear breakdown that distinguishes between wholesale and retail and also shows internal transactions for each operational unit, both revenue and expenditure. Wholesale revenue shall be broken down to each individual service.
- A statement showing a breakdown for the services belonging to the relevant market and quantity figures, such as number of connections in the relevant service.
- The company's depreciation list for the year in question showing a breakdown of all booked assets attributable to Míla access to bitstream service.
- The operations and balance sheet of the company's bitstream services shall be clearly separated from other related wholesale services, such as Internet service, distribution of television material and user equipment. An itemised statement of related services shall be included with a statement of the company's bitstream service with an analogous breakdown of individual revenue and cost items.

2125. The above specified statement should have reached the Administration no later than five months after the end of the financial year. Should Míla and Siminn accounting separation not be satisfactory, the PTA reserves the right to submit demands at a later date for further separation of accountancy. Among other things, it could transpire that specific obligations may be defined that relate to Siminn separation of accountancy with respect to the ERT test and its implementation.

2126. Míla shall furthermore deliver a report from an independent auditor to the PTA to show that there is correspondence between the Míla description to the PTA on how costs had been divided and the implementation of accounting separation by Míla.

2127. In the report the following shall be shown as a minimum:

- The conclusions of the party that conducted the audit.
- Statement of all instances of inconsistency.
- Proposals by the party conducting the audit for remedies, and their impact.

- Detailed description of how the audit was performed.
- Consolidated financial and bookkeeping information (for example an opinion with respect to the distribution of common costs and changes to assessment of assets to value in use).

2128. Specific obligations may be defined that relate to Siminn cost Separation of accountancy., in connection with the decision on the ERT test and its implementation.

2129. The PTA considers that the requirement for separation of accountancy on Mila and Siminn is both normal and reasonable given the situation on the relevant market and the competition problems that have been identified and described in Section 11.2.

11.7.5 Obligation for price control

11.7.5.1 General

2130. In article 32 of the Electronic Communications Act no. 81/2003, it states that when market analysis indicates that lack of active competition leads to a company with SMP demanding excessively high fees or where there is an abnormally small difference in wholesale and retail prices, the PTA may impose obligations on an electronic communications company for a cost related tariff and obligations for cost accounting for certain types of interconnections or access. Investment by electronic communications companies shall be taken into account and reasonable dividends from sunk capital, while also taking into account the risk of the investment. When an obligation for a cost related price tariff with reasonable dividends is imposed on an electronic communications company, the burden of proof rests on the company.

2131. In the same provision it states furthermore that the PTA can require that an electronic communications company make a cost model for the calculation of prices. When calculating costs, the PTA can use as a reference the operation of analogous service that is considered efficiently run and can also take into account tariffs in analogous competition markets and it may use cost analysis methodologies that are not related to methodologies employed by an electronic communications company.

2132. As was stated in the discussion on competition problems, the PTA considers that Mila could have opportunity and incentive to demand excessively high prices if there is no price control on the company's tariff. If Mila on the other hand, demanded prices that are too low on the relevant market for a short or mid-term period of time, with the intention of making it difficult for competitors, or even impossible in competition, there would be a serious risk that these prices would rise again if the competitors in question were significantly weakened or disappeared entirely, if there were no obligations on price control in place.

2133. It is the conclusion of the above specified market analysis for central access provided at a fixed location for mass-produced products that competition is not sufficiently active, and that Mila has SMP on the relevant market. Taking into account paragraph 1 of article 18 of the Electronic Communications Act, the conclusion indicates that Mila and Síminn can hinder competition and can behave to an appreciable extent independently of competitors, customers and consumers. Mila thus has the possibility of maintaining abnormally high or low prices and/or of exerting margin squeeze. Prices that are low in the short or mid-term can easily lead to higher prices later, as previously stated.

2134. Price is in many instances the main cause of competition problems and one must therefore consider that an obligation for price control is the most effective method to deal with such problems, along with a strong non-discrimination obligation. In the opinion of PTA, obligations concerning transparency and non-discrimination alone are not sufficient to solve competition problems such as cross-subsidy, price discrimination and excessive pricing. The PTA is of the opinion that an obligation concerning price control is necessary to strengthen competition in the relevant market and to strengthen competition at retail level. The PTA considers it necessary to facilitate the entry of independent service providers to the relevant market and to ensure that electronic communication companies already operating there can compete with the Siminn Group on normal competitive grounds on the relevant market and retail market. In order to ensure that the price for access is fair and normal and cost-based, the PTA considers it necessary to impose an obligation for price control on Mila on this market in the form of cost related tariff, both with respect to copper local loops and related facilities, as was argued in Sections 11.2 and 11.4. On the other hand, the PTA considers it appropriate to let it suffice to apply an obligation for an economic replicability test (ERT) with respect to central access to Mila fibre-optic local loops, see further discussion in Sections 11.7.2.5 here above and 11.7.5.5 here below.

2135. In the sections here below, there is further discussion on the price control obligations that the PTA intends to impose on Mila on this market.

11.7.5.2 Selection of methods when deciding wholesale price

2136. There are various possible methodologies for control and for a decision on price for access. According to article paragraph 3 32 of the Electronic Communications Act the PTA can demand that an electronic communications company make a cost model for the calculation of prices. The PTA can, pursuant to paragraph 4 of article 32, take into account the operations of analogous service that is considered to be efficiently operated and can take into account tariffs in analogous competition markets and it may use cost analysis methodologies that are not related to methodologies employed by the electronic communications company in question. When choosing the methodology, the PTA considers it proper to emphasise that the methodology can provide a conclusion that is normal and reasonable in both directions and can provide pricing that is not greatly in excess of real costs while at the same time assuring a normal return on investment.

2137. The main methodologies applied when deciding wholesale prices are the following:

- *Cost orientation*

The prices of services are based on historical costs of the company in question (HCA)²⁶⁰ or on assessed costs of an efficient network operator on the relevant market. Two methods have generally been used for cost analysis on the electronic communications market, that is to say based on the relevant company's bookkeeping where costs are allocated to the relevant service (FAC)²⁶¹ or on the analysis of long run incremental

²⁶⁰ Historical Cost Accounting.

²⁶¹ All costs are allocated to the appropriate operations and services (Fully Allocated Costs: FAC).

costs (LRIC)²⁶² on the basis of costs incurred in and efficiently operated electronic communications network (bottom-up model)²⁶³.

- *Benchmarking*
Prices on comparable competitive markets are compared and the price is decided on the basis of this comparison. Prices related to a specific sample of the comparison group.
- *Retail minus*
The retail minus methodology is used to find the wholesale price by subtracting a specific proportion from the retail price. The difference subtracted from the retail price is for the costs that would otherwise have been borne by the company at retail level.
- *Price cap*
The NRA decides the price cap for specific service that applies for a specific period of time. The price ceiling can change according to indexation and possibly in line with requirement for economies. The price ceiling can be decided initially on the basis of cost according to calculations in the cost model or in another manner.

2138. When choosing the best methodology for deciding pricing for access, it is important to keep in mind on the one hand that the methodology is efficient and not too onerous and on the other hand to create acceptable conditions for companies that may request wholesale access on the relevant market. One must furthermore ensure that competitors of the Siminn Group, that operate on the relevant market and on the downstream retail market can compete with the Group in a normal competitive environment.

2139. It can be assumed that cost analysis is an onerous obligation that should only be imposed if other methods are unsuccessful. In cost analysis, price is found based on cost information from a cost model and/or bookkeeping. To allocate costs to specific aspects of operations and services is a complicated and difficult task that can be carried out in various ways. The PTA can employ the BU-LRIC method for cost analysis in accordance with Regulation 564/2011 on bookkeeping and cost analysis in the operations of the electronic communications companies, which is a recognised methodology, among others, by the European Commission and by ESA. The methodology ensures transparency, and the regulators are not dependent on information from the bookkeeping of an electronic communications company.

2140. In the EU Commission recommendation dated 11 September 2013 on the implementation of harmonised non-discrimination obligations and cost analysis methodologies in order to increase competition and strengthen investments in the next generation of access networks (NGA)²⁶⁴ there is discussion on selecting a methodology to decide access prices that is conducive to supporting rollout of next generation networks. The recommendations apply both to access to local loops and to bitstream service.

2141. As the NRAs decided to link the price for wholesale access to copper and next generation access networks to costs according to the recommendations when choosing the methodology

²⁶² Long-run incremental cost is the cost that is added or is saved when a specific service or operation is added or discontinued, on the assumption that all costs are variable.

²⁶³ One speaks of a "bottom-up" LRIC model (BU-LRIC) in the case of a cost model for calculating the price of service on the basis of costs incurred in an efficiently designed electronic communications network in the relevant electronic communications market.

²⁶⁴ Commission recommendations of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.

to decide the access price, one may, among other things take into account the following objectives:²⁶⁵

- The costing methodology needs to lead to access prices that replicate as much as possible pricing on an effective competition market. The methodology shall be based on a modern efficient network, reflect the need for stable and predictable wholesale copper access price, support investment and act as an anchor for next generation services. The methodology shall deal with the impact of declining number of connections in an appropriate and consistent manner.
- The costing methodology needs to ensure that costs of an efficiently operated electronic communications company are recovered with an appropriate return on invested capital.
- The methodology shall support the assurance of efficient entry to electronic communications networks and shall ensure the provision of the appropriate build or buy signal for efficient investments particularly in the next generation of access networks (NGA).
- The costing methodology must ensure transparency and consistency within the European Union.

2142. In the opinion of the Commission the BU-LRIC+ costing methodology best meets the objectives that must be taken into account when price for wholesale access is decided.

11.7.5.3 Bitstream through copper local loops

2143. With the authority in article 32 of the Electronic Communications Act the PTA intends to impose an obligation on Mila for price control on bitstream access over copper local loops (with DSL technology such as VDSL and ADSL standards). Mila shall submit to the Administration for endorsement its wholesale tariff for access to bitstream at various locations on the network in accordance with the access options that are prescribed in more detail in Section 11.7.1 in compliance with the obligation to provide access, where variations in bandwidth and quality are also taken into consideration. In addition to this Mila shall submit to the Administration for endorsement a wholesale tariff for hosting equipment of other electronic communications companies and for access to other facilities related to bitstream and access to support systems and information necessary for a customer to be able to utilise bitstream. It shall be ensured in each instance that the tariff contain the all the wholesale bitstream service on offer from Mila to its own retail departments or to related companies, including multicast that enables IPTV service and the technology that enables VoIP service. Furthermore, Mila is obliged to review the product offer in its tariff in step with market requirements at any given time and if reasonable requests are received in accordance with the access obligation. Mila shall publish its wholesale tariff and conditions for all its DSL bitstream services provided through copper local loops. All additions and amendments to the tariff shall be endorsed in advance by the PTA and do not come into force until such an endorsement has been provided.

²⁶⁵ See further the specification in items 25-28 in the introduction to the recommendations.

11.7.5.4 Cost analysis for bitstream

2144. Pursuant to article 32 of the Electronic Communications Act, the tariffs for Mila bitstream service provided over copper local loops and for access to related facilities shall be cost-oriented.

2145. The PTA is authorised, when calculating costs, to take into account comparable service considered to be operated in an efficient manner. Furthermore, the PTA is authorised to make benchmarking on the basis of cost analysis of tariffs in comparable competition markets such as in the EEA.

2146. As stated here above, it is proposed in the previously mentioned EU recommendations on consistent non-discrimination obligations and costing methodologies from 2013 that the BU-LRIC+ model shall be used to decide price for access to copper and next generation networks where an obligation is imposed to base prices on costs. The PTA considers that because of the high cost of implementing the BU-LRIC+ cost model and the long preparation time, it is not appropriate at this point in time to adopt such a methodology on this market in this country. This could entail unnecessarily high costs for the PTA and for the relevant electronic communications companies. The Administration is very small in a European context and for this reason its budget is much more limited than is normally the case. Experience in the EEA had shown that the cost in making a BU-LRIC model was in the order of ISK tens of millions for each model and for each update. It was not considered right at this stage to make this requirement as the increase in cost would in all likelihood be eventually borne by consumers in the form of higher rates. The PTA therefore has therefore sought another more efficient manner to achieve the objective of having tariffs that reflect the operations of an efficiently operated electronic communications network on the relevant market. The PTA considers it appropriate therefore to build on the work that has already been done in recent years in cost analysis in order to minimise costs and time spent in reaching a Decision on new cost-oriented access prices for the coming years. The PTA therefore intends to build on historical costs when deciding Mila access prices for the company's bitstream service.

2147. Mila shall prepare a special tariff for priority and quality-controlled access for transmission of visual content using multicast technology (IPTV) through Mila's bitstream system and for interactive transmissions for video rental (VoD). The same applies to priority and quality-controlled transmission of bitstream for IP telephone service (VoIP). The tariff shall relate to Access Options 1-3 to the extent that this is technically possible and in the main shall use the following structure for the tariff.

- a) Access that uses significant bandwidth but without any quality definition (e. best effort) for general Internet service.
- b) Access that uses significant bandwidth and makes high-quality requirements for TV distribution and video over IP (IPTV, VoD) where among other things multicast technology is used and the appropriate communication protocols.
- c) Access that uses little bandwidth but makes high-quality requirements for IP fixed telephony service (VoIP).

2148. The above delivery of bitstream with varying quality control and performance shall be on offer at different locations on the network in accordance with the Access Options 1-3 in the following manner:

1. In DSLAM/OLT or equivalent equipment at the place where local loops connect to the telephone exchange distribution frame, street cabinet or other equipment space. (Option 1)
2. By transmission in the Mila backbone network, i.e., Mila handles the transition of signals from DSLAM/OLT to the connection point of another electronic communications company with the trunk line network. (Option 2)
3. By transfer to the Mila/Siminn trunk line network to a connection point where access is gained to customers across the whole country. (Option 3)

2149. When implementing its cost analysis Mila shall base its methodology on Chapter IV of Regulation no. 564/2011 on bookkeeping and cost analysis in the operations of electronic communications companies, such as on evaluation of operational assets, useful life and ROI requirement. The PTA will also have in mind that the tariff should relate logically to local loop leasing prices, with respect to the possible over or under-pricing by the Siminn Group of the above specified services. The PTA is authorised to reject costs that the Administration considers having resulted from inefficient operations, see among other things paragraph 4 of article 32 of the Electronic Communications Act No. 81/2003.

2150. Mila cost analysis for bitstream service provided over copper local loops, shall be based on the following main criteria:

- The cost analysis shall cover access with the technology described in the obligations to provide access (Section 11.6.1) on the basis of Access Options 1-3.
- Basic price for bitstream services for general Internet service best effort without endpoint equipment shall be shown and the price for quality controlled (QoS) bitstream access, i.e., the transmission of TV material with multicast, video rental material (unicast) and IP telephone service (VoIP).
- In addition to the above the Mila tariff shall contain as a minimum the price for all bitstream services and for connections provided today to its own service departments or to other related parties or parties cooperating with Mila and to other electronic communications companies.
- The cost base shall be Mila historic costs (HCA) based on the preceding financial year in each instance.
- The methodology shall be based on allocating all costs to the service in question (FAC).
- Allocation of costs is based on separation of accountancy for wholesale bitstream service, on Mila asset bookkeeping and on costs from the company's bookkeeping system where opex is entered by bookkeeping account.
- The opex (OPEX) of the bitstream system shall be captured, including the share in indirect costs, i.e., management and IT in accordance with separation of accountancy.
- When assessing investments (CAPEX) the value in use of the operational assets shall be used, taking into account the next generation of access networks (NGA).
- When evaluating the cost of the Access network, account shall be taken of the share in installation, capex and opex of wholesale switches.
- Evaluation of operational assets shall reflect the value in use of assets.
- The tilted annuity depreciation method shall be used to calculate annual costs for operational assets. It is authorised to use the tilted annuity depreciation method based on

estimated gross replacement cost (GRC) of the bitstream system. The cost of the total number of connections and bandwidth is calculated.

- When calculating unit prices, the average number for the year being analysed shall be used in each instance.
- The required rate of return used shall be based on weighted average cost of capital²⁶⁶ (WACC real)²⁶⁷ from capital tied in assets used in connection with provision of service where the risk premium reflects the risk related to operations on the relevant market.
- It is authorised to assume a working capital cycle of 30 days to assure normal operations.
- The average unit cost for individual bitstream access service is calculated as an average cost for the whole country on the basis of allocated opex and capex having taken into consideration varying access options, number of connections, bandwidth and their quality management.

2151. When deciding its tariff, Mila shall apply the above specified main criteria in its cost analysis and shall submit to the PTA for scrutiny and endorsement. The PTA considers it appropriate that Mila tariff for bitstream be independent of the company's tariff for local loops and for this reason that it should not be necessary to concurrently conduct cost analysis for these services.

2152. The PTA intends to decrease the frequency of reviews of tariff as was prescribed in the last market analysis. The time it takes to conduct a market analysis varies and for this reason it was not always possible to follow the timeframe that was set up. In order to increase predictability and stability in bitstream prices and to lessen the workload on the Administration and on Mila, the PTA intends therefore to decrease the number of overall reviews of Mila tariff for bitstream. Instead, the PTA intends to have the tariffs updated annually (1 January each year) using index development less the annual efficiency requirement between those times when the tariff is reviewed with new financial information. The PTA considers it appropriate to apply the consumer price index for these increases. The tariff shall, all things being equal, be reviewed at 2–3-year intervals and with each decision on new wholesale prices, a period of notice shall be decided for Mila to submit a new cost analysis. When reviewing a tariff, a new annual efficiency requirement shall be decided at the same time.

2153. Such an annual indexed review, having taken into account the efficiency requirement shall take place and shall be in force until the reviewed tariff is available and has been endorsed by the PTA.

2154. The PTA has requested the cost analysis from Mila for access to bitstream over copper local loops and Mila has notice until 1 June 2021 to deliver that cost analysis. This cost analysis will be based on the PTA Decision no. 21/2014, but the PTA will decide in the processing of that analysis a period of notice until the next cost analysis and the efficiency requirement shall be applied in the annual provision of Mila tariff. The annual revision described here above will not commence until after the coming into force of the decision on a new Mila tariff on the basis of the expected cost analysis.

²⁶⁶ In accordance with article 16 of Regulation no. 564/2011 the PTA decides on an annual basis the weighted average cost of capital (WACC) which electronic communications companies should use as a reference in their calculations.

²⁶⁷ The PTA will take the EU guidelines into account (The WACC Notice) when calculating WACC.

2155. A new wholesale tariff for bitstream access (with the exception of indexed increases, less efficiency requirements) does not come into force prior to endorsement by the PTA, subsequent to national consultation and consultation with ESA in each instance.

11.7.5.5 Bitstream through fibre-optic local loop

2156. PTA preliminary draft allowed for an obligation being imposed on Mila on Markets 3a and 3b, for price control, which constituted cost analysed prices for wholesale access to goods and service, both on the copper network and fibre-optic network. This constituted in addition to obligations that were imposed in 2014 where cost analysed prices were not prescribed on fibre-optic local loops.

2157. In the consultation on the PTA preliminary draft, comments were submitted by the Siminn Group and by number of municipalities, on the PTA plans to prescribe a cost analysed tariff for access to fibre-optic local loops. The main comments are specified here above in Section 10.7.5.6, but more detailed discussion can be found in Appendices B and C.

2158. As a result of comments received, the PTA decided to carefully scrutinise the considerations of the parties and to revisit the criteria for an obligation on price control of central access to Mila fibre-optic network, among other things the PTA assessment of market conditions, the relevant recommendations pursuant to the EEA agreement and practices in other EEA states.

2159. In Section 10.7.5.6. There is detailed discussion on the EU recommendation is with regards to obligations with respect to next-generation broadband networks and the PTA shall meticulously follow such recommendations. These are the EU recommendations on access to Next Generation Access networks from 20 September 2010²⁶⁸ and recommendations on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.²⁶⁹ In the latter, recommendations, emphasis is placed on providing 1 in pricing on connections over fibre-optic in order to encourage distribution of such networks, where possible. With respect to the conditions for waiving the obligation on cost analysed prices, there is discussion in recommendations from 2013 and those conditions that relate to central access are somewhat different from those that relate to local access. There is a description here below of the conditions that apply to Market 3b, but in other respects, references made to Section 10.7.5.6, with respect to further discussion on recommendations and practice within the EEA.

2160. In the case of virtual central access to NGA networks (such as bitstream), there are pursuant to the recommendations, adequate competitive preventative measures considered to be in place if those who purchase access can rely on access service to the adjacent market level, i.e. local loop lease or corresponding, that are subject to a non-discrimination obligation that includes EoI, a technical replicability test and an economic replicability test, if real use of such access options or the existence of other networks create visible constraints on pricing at retail level. Such constraints were not adequate for it to be deemed that that there was effective competition at wholesale level, but they should be sufficient to hinder parties with SMP from demanding an excessive retail price. With this analysis, the PTA imposes required obligations

²⁶⁸ RECOMMENDATIONS COMMISSION RECOMMENDATION of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU)

²⁶⁹ COMMISSION RECOMMENDATION of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU)

on the Siminn Group for local access and for non-discrimination with the required content. As stated in this analysis, such wholesale access, that is on offer on the market provides a level with respect to pricing, but market conditions are not considered to have reached that level where competition can be deemed efficient. According to this, the PTA considers that the conditions for applying an ERT test instead of obligations for cost related tariff are now in place, with respect to c provided over fibre-optic local loops owned by or under long-term control of Mila. For further arguments and discussion on comments of stakeholders, reference is made to Section 10.7.5.6, and the same arguments a Market 3b to a large extent.

2161. With the discussion here above in mind, the PTA has decided not to impose an obligation on Mila for cost analysed prices for central provided over fibre-optic local loops for the time being.

2162. The PTA considers it appropriate that bitstream access through VDSL connections be subject to an obligation for cost analysed prices in accordance with the preliminary draft, though such connections can be categorised under the definition of an NGA network, pursuant to the recommendations 2010/572/EU and 2013/466/EU.

2163. With respect to wholesale access to fibre-optic local loops on the relevant market, which are not intended to be subject to a cost analysis obligation pursuant to the above, the PTA considers it proper that an obligation rest on Mila for justified and fair pricing, without discrimination.

2164. Mila shall publish the tariff for central access to fibre-optic local loops. Mila is authorised to offer discounts of monthly fees for central access to fibre-optic local loops for long-term agreements similar to the discounts offered in leased lines and access to facilities. The following discounts are now available in leased lines and access to facilities:

- Agreement length one year, discount 5%. Exit charge 1 month lease rental.
- Agreement length 2 years, discount 10%. Exit charge 2 months lease rental.
- Agreement length 3 years, discount 15%. Exit charge 3 months lease rental.

2165. The obligation furthermore rests on Mila and Siminn to ensure that there is not too small a difference between price of wholesale procurements and the price on downstream markets, including the retail price of the most important subscription packages that contain Internet access. In this connection, the companies will be required to withstand an ERT test pursuant to a separate decision to that effect, see discussion in Section 11.7.2.6.

2166. Mila and Siminn will furthermore be banned from applying damaging predatory pricing at wholesale and retail levels on the relevant and related markets.

2167. Mila will however be authorised latitude in pricing in order to support increased use of investments in fibre-optic connections within the limits set by the ERT test.

2168. Siminn will be required to ensure that the most important subscription packages that contain Internet connections are priced in a normal manner, and such that margin squeeze does not occur between the retail price and wholesale procurement.

2169. Mila and Siminn will be required to provide the PTA with all necessary information to confirm whether pricing in wholesale and retail is in accordance with the above.

11.7.5.6 Conclusion on price control

2170. With the authority in article 32 of the Electronic Communications Act the PTA intends to impose an obligation on Siminn for price control, i.e., for a cost-oriented tariff for wholesale bitstream access provided over fibre-optic and copper local loops and for related facilities.

2171. Mila shall therefore submit to the Administration for endorsement a wholesale tariff for access to bitstream at differing locations on the network with differing standards, such as ADSL and VDSL technology. In addition to this Mila shall submit to the Administration for endorsement a wholesale tariff for hosting equipment of other electronic communications companies and for access to other facilities related to bitstream and access to support systems and information necessary for a customer to be able to utilise bitstream. The tariff shall be cost-oriented.

2172. When deciding prices for the above specified bitstream service, Mila shall use historical costs allocated to the relevant service (HCA FAC). Emphasis shall be placed on determining the division of costs of the company's bitstream service at wholesale level between general bitstream service (best effort) on the one hand and priority service on the other hand (IPTV, VoD and VoIP). Mila shall submit the conclusion of the cost analysis to the PTA for endorsement. The tariff shall then be reviewed regularly in accordance with an update of the cost analysis each instance. The PTA plans to allow for 2-3 years between revisions of the tariff instead of the tariff increasing annually using the consumer price index having taken into account the efficiency requirement that is decided with each review of the tariff. The first annual increase pursuant to the index will be implementable at the first turn of year subsequent to the next review Mila tariff on this market.

2173. An obligation for cost-oriented tariff does not apply to central access to Mila fibre-optic local loops. Mila pricing of central access the fibre-optic local loops shall, on the other hand be justifiable and fair and without discrimination. The obligation rests on Mila and Siminn to ensure that there is not too small a difference between price of wholesale procurements and the price on downstream markets, including the retail price of the most important subscription packages that contain Internet access. In this connection, the companies will be required to withstand an ERT test pursuant to a separate decision to that effect, see discussion in Section 11.7.2.6. Mila and Siminn are furthermore banned from applying damaging under-pricing at wholesale and retail levels on the relevant and related markets. Mila is authorised latitude in pricing within the limits prescribed above, in order to support increased use of investments in fibre-optic connections. Mila shall publish the tariff for central access to fibre-optic local loops.

2174. Siminn will be required to ensure that the most important subscription packages that contain Internet connections are priced in a normal manner, and such that margin squeeze does not occur between the retail which is and wholesale procurement.

2175. Mila and Siminn will be obliged to provide the PTA with all necessary information to confirm whether pricing in wholesale and retail is in accordance with the above.

2176. Cost analysis for lease of facilities and related service provided for Mila bitstream service, shall be in accordance with that specified in Section 10.7.5.5 here above.

11.7.6 Obligation for cost accounting

2177. Pursuant to article 32 of the Act on Electronic Communications the PTA can impose obligations for cost accounting for specific types of interconnections or for access, in accordance with a cost related tariff. According to Chapter IV of Regulation no. 564/2011, on bookkeeping and cost analysis in the operations of electronic communications companies, an electronic communications company with SMP on which special obligations have been imposed pursuant to the Act on Electronic Communications shall inform the PTA on the structure of separation in bookkeeping, with respect to income and expenses, among other things for the user network and the backbone network.

2178. Cost accounting is necessary when the obligation for price control has been imposed on an electronic communications company with SMP. Subsequent to the intention of the PTA to impose an obligation for price control on Mila, the PTA also intends to impose an obligation for cost accounting. The obligation for cost accounting supports the obligation that the tariff is cost related, and it is necessary for the implementation of separation of accountancy and can support surveillance of the non-discrimination obligation.

2179. In order for Mila to demonstrate that the tariff for a specific kind of service or product is cost-oriented, it is necessary to practise cost accounting that captures, identifies, assesses and allocates the relevant costs to the services or products in accordance with recognised rules, that is to say a causal relationship.

2180. The PTA considers that without the obligation for cost accounting, Mila could price its services on the relevant market under or above cost and the Siminn Group could have an abnormally small difference between wholesale and retail prices which would have negative consequences for users. Without the obligation for cost bookkeeping the PTA could not ensure that pricing took costs into account thus prevented problems of this kind.

2181. The PTA plans to impose an obligation on Mila for cost accounting with regard to those parts of the electronic communications operations necessary for giving bitstream access to network infrastructure provided at a fixed location. Mila shall submit to the PTA a description of the cost accounting for Bitstream access over fibre and copper local loops and shall publish cost categories, cost items and their relationship to the cost driver.

2182. Mila shall no later than 1 April 2022, submit to the PTA a description of the cost accounting bookkeeping for bitstream access over fibre and copper local loops and related facilities and publish the main cost categories and the rules used to allocate costs of the units. Mila shall at the same time deliver a report to the PTA from an independent auditor showing that there is correspondence between the Siminn description to the PTA of how costs are allocated and the implementation in Mila's cost bookkeeping system.

2183. In accordance with the above Mila shall maintain cost bookkeeping for wholesale access to network infrastructure provided at a fixed location in order that Mila can demonstrate that the tariff for a specific type of service or product takes historical costs into account. Siminn shall furthermore deliver a description to the PTA of the cost accounting for local loops and shall deliver a report to the PTA from an independent auditor with respect to its cost accounting. Specific obligations may be defined that relate to Siminn cost accounting, in connection with the decision on the ERT test and its implementation.