

Appendix A



PÓST- OG FJARSKIPTASTOFNUN

Draft

- Market analysis -

**Analysis of wholesale market for call
termination in public telephone networks provided
at a fixed location
(Market 1/2016)**

XX November 2016

Table of Contents

1.0	Introduction	6
1.1	General.....	6
1.2	Electronic communications legislation.....	7
1.3	The PTA implementation of market analysis	8
1.4	On market analysis	9
1.4.1	General	9
1.4.2	Demarcation of product and service markets	9
1.4.3	Demarcation of the geographical market	10
1.4.4	Conditions for being able to define other markets	10
2.0	Definition of the relevant markets.....	11
2.1	Definition of the Market for call termination in the Recommendation.....	11
2.2	The PTA definition of the relevant service markets.....	11
2.2.1	General	11
2.2.2	Internal use	12
2.2.3	Delineation between markets for origination, termination and transit of calls ..	12
2.2.4	Telephone calls with dial-up connection for Internet access	12
2.2.5	Differentiation between companies and individuals	13
2.2.6	Various services are necessary in connection with interconnection.	13
2.2.7	Calls to and from other kinds of networks	13
2.2.8	Internet phone (VoIP).....	14
2.2.8.1	General	14
2.2.8.2	Internet phone that uses software, and not telephone numbers.....	14
2.2.8.3	Internet phone that uses telephone numbers	15
2.2.8.4	Supply-side substitutability.....	16
2.2.8.5	Interconnection of Internet phones	16
2.2.8.6	Conclusion with respect to Internet telephones	17
2.3	Conclusion of the PTA on the definition of service markets for call termination in fixed networks	17
3.0	Definition of geographical market	18
3.1	General.....	18
3.2	Call termination	18
4.0	General comments on the fixed telephony market.....	20
4.1	Market development	20
4.2	Changes in demand for fixed telephony services	21
4.3	Interconnection of fixed networks	24
4.4	Interconnection fees.....	27
5.0	Evaluation of market power on markets for call termination in individual public telephone networks provided at a fixed location.....	28
5.1	General.....	28
5.2	Market share	28
5.3	Price development	29
5.4	Entry barriers, and potential competition	29
5.5	Countervailing buying power	30
5.6	Conclusion and designation of companies with significant market power on Market 1/2016.....	31
6.0	Imposition of regulatory obligations	32
6.1	In general on obligations	32

6.2	Competition problems in the market for call termination in fixed line networks	33
6.2.1	General	33
6.2.2	Refusal of access	33
6.2.3	Excessive pricing.....	34
6.2.4	Informal price-fixing	35
6.2.5	Price discrimination.....	36
6.2.6	Discrimination with respect to factors other than price	36
6.2.6.1	General	36
6.2.6.2	Unannounced changes in prices and products	37
6.2.6.3	Cross-subsidy	37
6.3	Obligations in force	37
6.3.1	General	37
6.3.2	Market obligations for call termination.....	38
6.4	The impact of existing obligations	39
6.5	Proposals for obligations	39
6.5.1	Obligation to provide access	40
6.5.2	Obligation of non-discrimination	41
6.5.3	Obligation of transparency	42
6.5.4	Obligation of accounting separation	43
6.5.5	Obligation of price control	43
6.5.5.1	General	43
6.5.5.2	Recommendations from the EU Commission and from ESA on obligations with respect to termination rates	44
6.5.5.3	PTA Decision no. 36/2012.....	45
6.5.5.4	Termination rates decided by benchmarking	46
6.5.5.5	PTA conclusion on obligation of price control.....	48
6.5.6	Assessment of the effects of planned obligations	50

Summary and Conclusions

This document contains the Post and Telecom Administration (PTA) analysis of the wholesale markets for call termination on the public telephone network provided at a fixed location which is Market 1 in the EFTA Surveillance Authority (ESA) Recommendation on the relevant markets from 11 May 2016.

The market covered in this document is the wholesale market for call termination on individual public telephone networks provided at a fixed location (previously Market 3 pursuant to Recommendation from 2008 and no. 9 in the Recommendation from 2004, and which now is called Market no. 1/2016). This document shall use the name convention 1/2016, 3/2008 and 9/2004 when referring to the relevant markets in historical context.

The last market analysis of wholesale markets for fixed telephony services, along with a Decision on the designation of companies with significant market power and on the imposition of obligations was published 14 December 2012. The PTA conclusion was to designate Síminn, Fjaraskipti (Vodafone), Símafélagið, Hringdu and Nova as having significant market power on the call termination market. The PTA imposed the following obligations on the companies on the relevant market:

- Obligation of access (all companies on the market)
- Obligation of non-discrimination (all companies on the market)
- Obligation of transparency (all companies on the market, but the obligation to publish a reference offer will only be imposed on Síminn)
- Obligation of accounting separation (Síminn and Vodafone)
- Obligation of price control which will be implemented through benchmarking (all companies on the market).

The obligation on Síminn for cost accounting was lifted.

On the Market for call termination in fixed networks there are still insurmountable entry barriers as no company can offer termination except in its own network. All companies thus have 100% market share in their own networks. The PTS intends to designate all companies on this market as companies with significant market power and these companies are as follows: Síminn, Fjaraskipti (Vodafone), Símafélagið, Hringdu, Nova and Tismi.

The PTA intends to maintain and impose obligations on this market as follows:

- Obligation of access (all companies on the market)
- Obligation of non-discrimination (all companies on the market)
- Obligation of transparency (all companies on the market)
- Obligation of price control which will be implemented through benchmarking (all companies on the market)

The obligation on Síminn and Vodafone for accounting separation is lifted. Furthermore, the obligation on Síminn for the publishing of a reference offer is lifted.

According to ESA Recommendation on termination rates from 13 April, 2011, all termination rates on Market 1/2016 shall be symmetric after 31 December 2012. Subsequent to the last analysis, on the relevant market, all termination rates were brought to a symmetric level on 1 March 2013 and annual benchmarking is conducted, which decides termination rates for one year at a time. Termination rates for all companies were decided at ISK 0.16/minute for the year 2016 with the PTA Decision no. 19/2015. Prices shall continue to be decided with annual benchmarking in the same manner.

1.0 Introduction

1.1 General

1. This document contains the Post and Telecom Administration (PTA) analysis of the wholesale markets for call termination in fixed telephony (Market 1 in the ESA Recommendation in force on the relevant market from 2016). The PTA published an analysis of this market, along with its Decision on obligations on companies with significant market power on 14 December 2012 (Market 3 in the ESA Recommendation then in force on the relevant markets). It is assumed that market analyses will be repeated at regular intervals in order to monitor whether changes occur to circumstances on the market. The PTA considers it now appropriate to review the previous analysis.

2. The document is based on a draft that was submitted for consultation with a letter dated 10 October 2016, where the Competition Authority, electronic communications companies and other stakeholders were offered to make observations on the market analysis. The Competition Authority submitted observations. The Competition Authority stated that it considered the analysis well made and serving its objectives and agree with the PTA in its findings. Síminn communicated to the PTA that the company did not have any comments on the findings of the analysis.

3. The market analysis and draft decision with respect to obligations on the relevant market are now sent to the EFTA Surveillance Authority (ESA) for consultation, see Paragraph 1 Article 7 of Act number 69/2003, on the Post and Telecom Administration. Should ESA make no observations on the market analysis and on the PTA draft decision then the decision will be notified to the companies in question.

4. Market analyses are divided into several main sections. In the first instance the service and geographical markets are defined and then an analysis is made of whether the market is prospectively competitive or whether one or more companies have significant market power. It is finally evaluated whether it is appropriate to impose, maintain, change or withdraw obligations on companies on the market.

5. Markets and analyses of markets are not permanent, but are subject to regular review. Markets that constantly change need to be reviewed again within reasonable time limits. Markets are analysed with a view to developments in the near future as far as possible. The period of time in question should reflect the specific attributes in a given market and thus the estimated time until the next analysis of that market will be conducted.¹ In most instances, one can expect this to be 3 years.

¹ See Paragraph 20 in the EFTA Surveillance Authority Guidelines from 14, July 2004 on market analysis and assessment of significant market power, pursuant to the framework, provisions for electronic communications networks and services as specified in annex XL to the EEA agreement, EEA additions no. 21, from 27 April 2006.

1.2 Electronic communications legislation

6. 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. EU electronic communications legislation is intended to create a homogeneous working environment for electronic communications companies in Europe, to limit barriers and create conditions for sustainable competition for the benefit of consumers.

7. Pursuant to Chapter V of The Electronic Communications Act the PTA is obliged to define certain electronic communications markets, both in terms of service and in terms of geographical scope, in accordance with the fundamental principles of Competition Law and the obligations pursuant to the European Economic Area (EEA) Agreement. Furthermore, the PTA is required to analyse the defined markets and determine whether they are characterised by active competition. If the PTA comes to the conclusion that there is active 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 on the other hand, the PTA come to the conclusion that there is not active competition on the relevant market because one or more companies have significant market power, then the institution is obliged to designate them 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 area on the definition of markets, market analysis and on decisions on obligations.

8. The European Commission has published Guidelines and a Recommendation on the market analysis. On the one hand there are Guidelines on market analysis and assessment of significant market power⁴ and on the other hand there is a Recommendation on the relevant markets.⁵ The EFTA Surveillance Authority (ESA) has issued analogous Guidelines⁶

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 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).

⁴ Commission Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic networks and services, 2002/C 165/3.

⁵ Existing regulations are: See Commission Recommendation 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. 2014/710/EU

⁶ EFTA Surveillance Authority Guidelines of 14 July 2004 on market analysis and the assessment of significant market power under the regulatory framework for electronic communications networks and services referred to in Annex XI of the Agreement on the European Economic Area.

(hereinafter called “the Guidelines,”) and a Recommendation⁷ (hereinafter called “the Recommendation”) and the PTA has made reference to the Guidelines and Recommendations from ESA and from the Commission when conducting its market analyses. Furthermore, the PTA has taken into account the report of the European regulatory group (ERG⁸) on obligations that may be imposed on electronic communications companies with significant market power in order to strengthen competition⁹, along with further reports from the institution which is now called BEREC.

9. In the existing Recommendation on the relevant market, 4 electronic communications markets that the PTA is obliged to analyse have been defined 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. In this connection it could be the case that the PTA market definition would vary from those prescribed in the Recommendation. The PTA is also authorised to investigate all relevant electronic communications markets in connection with market analysis, regardless of whether or not they are listed in the Recommendation. In a previous ESA Recommendation from 2008, 7 markets were defined, including the wholesale market for access and call origination in public fixed line networks. The market in question is also in the Recommendation now in force from 2016, i.e. Market 1/2016.

10. The Ministry of Communications has issued a Regulation on market analysis in the field of electronic communications, no. 741/2009, with the authority of Paragraph 3, Articles 18 and 75 of the Electronic Communications Act. The Regulation covers the process and the main criteria to be applied when defining electronic communications markets, analysing relevant markets, making decisions on designation of a company or companies 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.

1.3 The PTA implementation of market analysis

11. As is stated in the PTA information brochure on market analysis¹⁰, the implementation of market analysis can be divided into three stages:

- Define the relevant service markets and geographical markets.
- Analyse each of the defined markets, determine whether there is active competition on these markets and make a Decision on whether one can find one or more companies with significant market power in a market.

⁷ Existing regulations are: EFTA Surveillance Authority Recommendation of 11 May 2016 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with the Act referred to at point 5cl of Annex XI to the EEA Agreement (Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services), as adapted by Protocol I thereto and by the sectoral adaptations contained in Annex XI to that Agreement.

⁸ Abbreviation for “European Regulatory Group of National Regulatory Authorities”. Now the institution is called Body of European Regulators for Electronic Communications (BEREC).

⁹ *Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework. Final Version May 2006. ERG (06) 33.* The document can be seen here: http://erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf

¹⁰ The PTA information brochure on market analysis. Last updated in August 2009. [http://www.pfs.is/upload/files/Kynningarrit_um_markaðsgreiningu_ágúst_2009\(1\).pdf](http://www.pfs.is/upload/files/Kynningarrit_um_markaðsgreiningu_ágúst_2009(1).pdf)

- Make a decision on whether obligations shall be imposed, amended or withdrawn on companies with significant market power.

12. Work on this analysis commenced in mid-2015. The Administration has collected information, among other things regular statistical information, and has had informal communications with parties to the market. Statistics, among other things on the fixed telephony network, are collected from all parties to the market at six monthly intervals. In addition to this, the PTA collects and registers information on all changes to tariffs as they take place.

13. This Preliminary Draft is sent to the Competition Authority and to stakeholders and they are asked to make observations. The PTA then processes any observations received and reports on them in a separate document. The market analysis was updated in accordance with the comments that were taken into account. The market analysis and Draft Decision with respect to obligations on the relevant markets 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 make no observations on the market analysis and on the PTA Draft Decision then the Decision will be notified to the companies in question.

1.4 On market analysis

1.4.1 General

14. Pursuant to Article 16 of the Electronic Communications Act no. 81/2003 as amended, the PTA shall define service or product and geographical markets in accordance with the main principles of Competition Law and with obligations pursuant to the EEA Agreement. As has been stated it is necessary for the PTA to evaluate whether the markets, as defined in the Recommendation, harmonise with Icelandic circumstances. Both the service and geographical markets must be defined before it is possible to assess whether market conditions are such that they are susceptible to the imposition of ex-ante obligations.

1.4.2 Demarcation of product and service markets

15. 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. Products that can be substituted for one another only to a limited extent are not considered to belong to the same market.

16. Substitutability is 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).¹¹ Demand-side substitutability is considered fundamental to market definition, while supply-side substitutability is less meaningful and is often related instead to an assessment of potential competition.

1.4.3 Demarcation of the geographical market

17. When a service market has been defined, its geographical dimension must be defined. The main rule is that it is based on the scope of the electronic communications network and the legislative jurisdiction of the regulatory framework that applies to it. Geographical demarcation is also based on an assessment of substitutability of the product or service in question, on the supply side and on the demand side. The geographic market is the area where products or services are offered on sufficiently homogeneous competitive terms. In assessing demand-side substitutability, it is appropriate to consider customers' tastes and geographical purchasing patterns. On the basis of this, it is possible to define markets as local, regional, national, or transnational; that is, extending to more than one country. If a market is considered to extend to more than one country, European regulatory authorities collaborate on the market definition together with the European Commission and ESA, if appropriate.

18. Two factors are important in defining geographical markets: on the one hand scope and coverage of an electronic communications network and on the other hand price. If a telecommunications network is distributed over the whole country, then this is an indication that the geographical scope should be the whole country. If the distribution of the network is regional and there is no overlapping of regions, this is an indication that the geographical scope should be regional. If prices are the same for the entire country, this indicates that the geographical scope should be national. If prices differ according to region, this is a strong indication that supply- and demand-side substitutability do not exist and that the regions in question are distinct geographical markets.¹²

1.4.4 Conditions for being able to define other markets

19. 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 defining other markets, the following conditions need to be fulfilled to enable the imposition of obligations:

- The market shows high and non-transitory barriers to entry.
- Market structures do not tend towards effective competition in a relevant time horizon.
- Application of Competition Law alone does not adequately abolish obstacles and strengthen competition.

The above conditions, in the opinion of the EU Commission and of the ESA, exist in the EEA on the service markets here being examined.

¹¹ See further Paragraph 39 in the Guidelines and the Explanatory Note the EU Commission Recommendation, Chapter 3.1.

¹² Definition of the geographical dimension of markets is discussed in Chapter 2.2.2 of the ESA Guidelines and also in the COMMISSION NOTICE on the definition of the relevant market for the purposes of Community Competition Law. (OJ C372 9/12/1997) and ERG Common Position on Geographic Aspects of Market Analysis (definition and remedies) - October 2008 ERG (08) 20 final CP Geog Aspects 081016.

2.0 Definition of the relevant markets

2.1 Definition of the Market for call termination in the Recommendation

20. In the Recommendation from ESA from 2016, and from the EU in 2014, and in their Explanatory Note, the market for termination of telephone calls (1/2016) is defined in a very analogous manner to that of the older Recommendations on which the analysis from the PTA in 2012 was based. The Recommendation bases its definition on the wholesale market for termination of calls in a fixed network on the assumption that such a service is a necessary part of a telephone call in retail service. It is pointed out in the Explanatory Note that it is usually possible to choose between connections at various levels of electronic communication networks to terminate calls. In some instances connections are set up in such a manner that both transit and termination are required for the call to reach its destination. It is however only the call termination charge part that belongs to the relevant market, as there are often opportunities to purchase transit and termination separately.

21. In the Explanatory Note to the Recommendation the conclusion is reached that supply substitutability does not exist. Supply substitutability would be possible if two or more types of access connections were available for users, but this is seldom the case. There is no existing technology that allows others than those who control the access connection to offer termination to the user in question. For this reason, the conclusion is reached that the network of each service provider in termination of telephone calls in fixed networks is a distinct market.

22. In the Explanatory Note it is stated that demand substitutability does not exist at wholesale level. There could conceivably be some demand substitutability at retail level such as mobile phone "call back" telephone calls, IP calls or e-mail. The force of such possible substitutability is not considered sufficient to justify a wider market definition.

23. The competitive position is however totally different when it comes to termination of telephone calls in dial-up connections with Internet service providers. As Internet service providers can choose the service provider who handles termination and can switch between service providers at will the conclusion is reached in the Explanatory Note to the Recommendation that in termination of telephone calls to Internet service providers, competition generally exists and that there is no reason to intervene in this part of the market. Termination of these telephone calls is thus not part of Market 1/2016.

24. In the Appendix to the Recommendations the market is defined in the following manner: *Call termination on individual public telephone networks provided at a fixed location.* This refers to that part of a telephone call that is neither considered to be origination or transit of a call in an individual public telephone network at a fixed location in a national context.

2.2 The PTA definition of the relevant service markets

2.2.1 General

25. In this section, the PTA will define the market for call termination in a fixed location public phone network in accordance with the ESA Recommendation. The PTA agrees with the definition in the Recommendation and of the demarcation with respect to other services. There are however some issues that The PTA considers necessary to examine more closely and it is also necessary to examine the markets from an Icelandic perspective.

26. In its analysis of Market 3/2008 which was published in its final version on 14 December 2012, the PTA defined a market for call termination in individual public telephone networks provided at a fixed location. This definition is based on the definition in the ESA Recommendation that was then in force, taking into consideration the Explanatory Note to the EU Commission Recommendation. The PTA considers that the former definition of the market still applies. There has been no fundamental change in the definitions of these markets in the ESA Recommendation from 2008 or in the Explanatory Note to the existing Recommendation from the EU Commission. Discussion on the definition and demarcation of the market in the following text is thus mostly analogous to that in the previous analysis.

2.2.2 Internal use

27. The PTA assumes in the market analysis that both fixed telephony that goes between networks and fixed telephony that is totally within the same network belong to the markets being examined here. Underlying constituent parts in most telephony retail service are origination and termination of telephone calls, and in some instances transit of telephone calls. Electronic communication companies need this service to be able to provide retail fixed telephony services. The use of these service items creates demand on the wholesale market, both in cases where such transactions are made within the same company or between companies.

28. It is appropriate to note that in the Explanatory Note to the EU Recommendation from 2007 internal traffic is not exempted in the definition of Markets 2/2008 and 1/2016, as seems to have been done in the definition of termination of calls in mobile phone networks.¹³

2.2.3 Delineation between markets for origination, termination and transit of calls

29. In the Recommendation it is assumed that origination and termination of calls is linked to interconnection within the same interconnection area. If a call starts and ends within the same interconnection area then it comprises origination (Market 2/2008) and termination (Market 1/2016), and not transit (Market 10/2004 according to the older Recommendation). In Síminn's fixed telephony network there is only one interconnection area which covers the whole country. The same can be said about Vodafone's fixed telephony network. Because each network has only one interconnection area there is no transit if a telephone call takes place totally within the same network. The telephone call then solely comprises origination and termination. The same can be said about calls from an exchange in one network over to an exchange in another network and that end in that network. In such an instance the call comprises origination in the former network and termination in the latter. As neither network is divided into interconnection areas then there is no charge collected for transit of the call. If a call on the other hand starts in one network, goes through another network which is a fixed telephony network and ends in a third network, then this is a case of transit in the network in the middle. Given the circumstances and interconnection conditions in this country, transit of calls through fixed telephony networks only take place where a call goes from one network to fixed telephony network and over to a third network.

2.2.4 Telephone calls with dial-up connection for Internet access

30. The PTA agrees with what is said in the Recommendation with respect to calls with dial-up connections with Internet service providers, that is to say that such calls are part of

¹³ See the Explanatory Note to the EU Recommendation from 2007, page 44.

Market 2/2008, for the origination of calls and not Market 1/2016 (previously 3/2008) for call termination. The significance of dial-up connections is on a steady decline and this distinction is less important than before as Internet access through dial-up modems or other use of modems on the fixed network for data connections is almost non-existent (46,000 minutes for the year 2015) and Síminn is the only company that still provides such service. Call termination in dial-up systems is thus not part of Market 1/2016.

2.2.5 Differentiation between companies and individuals

31. The Recommendation no longer distinguishes between corporate and individual markets for retail fixed telephony services. It makes no difference to origination and termination of traditional calls sold in wholesale whether they are intended for retail sale to companies or individuals. The service and pricing are the same. With a view to the above the PTA has come to the conclusion that both calls for households and companies are part of the relevant market.

2.2.6 Various services are necessary in connection with interconnection.

32. According to the Síminn reference offer there are various services other than origination and termination of calls offered in connection with the interconnection of fixed telephony networks.¹⁴ These service items are among other things, connection into an interconnection area, connection to current from the interconnection point, connection of signal routes, signal traffic and various services for carrier selection and pre-selection. The services are more or less necessary in order to be able to interconnect with the Síminn network. Charges for this service are only to a small extent related to use. They are mainly fixed charges, that is to say set-up and/or monthly charge.

33. There is little discussion on services related to interconnection of fixed location public networks in the Recommendation. Many of these services cannot be attributed to one particular wholesale market for fixed telephony services rather than another. For this reason, it seems most reasonable to divide the income from the services proportionately between Markets 2/2008 and 1/2016 when market share is measured by revenue. Income from these items is however not likely to have a significant impact on market share so the PTA considers there to be no reason to include them when market share is measured. Nevertheless, the PTA considers that the services are part of the wholesale market for fixed telephony services. This means that obligations could be imposed in connection with the service items.

2.2.7 Calls to and from other kinds of networks

34. Calls that have origination or termination in another kind of network than a domestic fixed location public network can to some extent be included in Markets 2/2008 and 1/2016. These could, for example, be telephone calls from or to mobile phone networks or international calls. If a telephone call originates in a domestic fixed location public telephone network then its origination component belongs to Market 2/2008. If it terminates in a domestic fixed network then its termination component belongs to Market 1/2016. The part of a call that passes through a domestic fixed network belongs to the relevant wholesale market for telephony services, as the service of a fixed network in this connection is not dissimilar to this that in calls that are totally within fixed networks and the pricing of the service is the same.

¹⁴ See Appendices 3a and b to the Síminn reference offer: <http://heildsala.siminn.is/simi/>

2.2.8 Internet phone (VoIP)

2.2.8.1 General

35. Internet telephone (VoIP)¹⁵ is a service that has been on offer for a number of years. Use of such service is increasing, but it has not led to very significant changes in the use of fixed line services, as was perhaps expected when the service was first introduced. The PTA considers it necessary to assess whether Internet telephone service belongs to Market 1/2016.

36. VoIP means that telephone calls are transmitted over the Internet in IP format. VoIP is often called Internet telephone, IP telephone, computer telephone or VoIP telephone, also sometimes abbreviated VoB (Voice over Broadband). Here the concept "Internet phone" will be used. Internet phone service means the transmission of voice using the Internet Protocol - IP. In traditional telephone systems a telephone call is changed into an electronic message which travels along circuit switched channels. The telephone call is transmitted from A to B in a specific format which is decided among other things, by the telephone number and the place of origination or address of the user. The Internet telephone on the other hand changes the voice into a data transfer package which is sent through a network divided into packages and not channels, and the packages are converted into voice in a computer or in a telephone designed for this purpose controlled by the party who has been called. Signal transmitters that organise telephone calls in a network divided into channels, decide what route is taken between two users of fixed line telephone service. Telephone numbers are the identifiers for each subscriber and they are fixed to a specific location or address. In Internet phone service the point of origination, and the destination are not defined as physical addresses but as electronic addresses. With this arrangement the user can make a call almost anywhere in the world where an Internet connection is available. The transmission capacity of a network divided into packages is used jointly with other services that travel through the network, whereas in a channel divided network, a connected channel is used exclusively for the duration of the call.

37. The PTA considers it justifiable to divide Internet phone services into two main categories.

- Internet phone that uses software, and not telephone numbers
- Internet phone that uses telephone numbers

2.2.8.2 Internet phone that uses software, and not telephone numbers

38. In general these are what were called peer-to-peer calls which are solutions where telephone calls are normally processed through appropriate software in private computers with the help of headphones/speakers and a microphone so that the user can have a conversation with other users through the Internet that have analogous software and equipment. This service is normally available from traditional Internet connections but it is not possible to use it to call or receive dialled calls from PSTN/ISDN networks.

39. When one calls from one computer to another then both the party making the call and the recipient need to be connected to the Internet and to have computers with appropriate software, headphones and a microphone is, in order to be able to conduct a conversation. The advantage when calling from computer to computer is that one only pays for the network connection and download, where appropriate, and not for the call itself. When calling through the Internet to a fixed line phone or mobile phone then in most instances one pays for the

¹⁵ "Voice over IP" (VoIP) Means that calls are partly or totally transmitted through an IP network.

telephone call according to a special tariff that is based on a fixed price per minute. It is reasonable to consider whether VoIP telephone calls, from one computer to the other, could be a substitute for telephone calls to mobile phones should prices for such calls increase (because of higher termination rates). The main argument against this would be mobility and this would apply also to calls to fixed line telephones instead of to mobile phones. In addition to this, both parties need to have the same programme installed in their computers and the receiving party needs to have the program active when the calling party wishes to make a connection. The advantage with the mobile phone call is that it is possible to reach the party in question wherever he is located, an advantage that, all things being equal, cannot be achieved in a computer.

40. Various apps for mobile phones that can transfer calls over 3G and 4G data transfer networks have achieved some distribution. They are however subject to the same drawbacks as VoIP from computer to computer that both parties need to have installed the same app in their mobile phones and to have them active at the same time for a call to be possible. Such service provided by apps cannot ensure comparable quality, neither in the quality of sound of the conversation or in the uptime of the service in the same manner as a fixed telephony network. Though it is likely that data transfer costs with such telephone calls are possibly somewhat lower than the minute price for the same telephone call, one cannot see that such apps have sufficient substitutability for telephone calls for them to provide competitive restraint to any real degree.

41. It is only possible to connect to a limited group of users in this manner so it is unlikely that price increases in fixed line telephone calls will lead to a large group of users converting to Internet phone calls in this category. There is reason to believe that Internet phone calls of this kind are mainly used as an addition to traditional fixed line usage and not instead of it. The proportion of substitutability could certainly increase in the case of international calls. One could, for example, consider that many users have very little need to be able to access all telephone numbers abroad through their fixed line telephone or to be themselves available. Then the solution of being able to communicate with a closed group of users (without using telephone numbers) could be satisfactory. It is however unlikely that this use of Internet phone would lead to many individual customers cancelling their subscriptions to traditional fixed line telephones. For this reason, it is not possible to consider Internet telephones of this kind as a real alternative to the traditional fixed line telephone.

42. Variations of this service can offer telephone calls from computers or smart phones to traditional telephone numbers for a fee. This possibility increases the usability of the service and provides the option of being able to call almost any end-user. The substitutability of this service is however limited, with respect to traditional fixed telephony services in that it is not possible to call the Internet telephone user from a traditional fixed line telephone. The PTA therefore considers that this kind of service is not part of Market 1/2016.

2.2.8.3 Internet phone that uses telephone numbers

43. Internet phone service of this type is normally implemented through operation of telephone exchanges which are interconnected with the public PSTN/ISDN telephone system and they use telephone numbers in accordance with number structure for fixed telephony services in order to enable communication between users. Service providers of this type of Internet telephone provide users either with a broadband connection and Internet phone or they offer simply an Internet phone service through broadband access from another service provider. Such a VoIP telephone exchange operated by service providers is usually equipped with most of the options for providing service that traditional PSTN/ISDN telephone exchanges have.

44. The functionality of these Internet telephones is to a large extent analogous to normal PSTN/ISDN telephone services. Most users that use this kind of Internet phone use it instead of a traditional fixed line phone. This indicates that one may regard this service as part of the same market.

45. The PTA published an announcement regarding Internet phone services on 3 February 2006. The announcement stated that given the Recommendations in Electronic Communications Committee no. ECC/REC/(05)03, from 10 May, 2005, and taking into account the observations received from stakeholders, it was the opinion of the PTA that Internet telephone services could be substitute services for fixed line telephony services. In other words, the PTA considered that one should not distinguish on the basis of the technology used when providing fixed telephony services. So the provisions of the Electronic Communications Act no. 81/2003 on fixed telephony services apply to Internet phones as appropriate, including the provisions on access to emergency services through the number 112, number display, phone tapping and operational security. This announcement enabled the use of traditional fixed telephony numbers for Internet phones, including number transfer if this service is fixed to a specific location for the end user. If the service is however not fixed to a specific location (nomadic service) then a dedicated number series shall be used, 49x xxxx and number transfer between such services and fixed location services is unauthorised.

2.2.8.4 Supply-side substitutability

46. One also has to assess whether Internet phones provide substitutability on the supply-side in connection with telephone services through PSTN/ISDN networks. Fixed pre-selection makes it possible for companies to offer PSTN/ISDN services without investing heavily in electronic communications infrastructure. The company in question needs first and foremost to have a management support system to handle customers, and to implement direct or indirect interconnection with other companies. The same applies to companies that provide Internet phone services. In general it is not a major problem, nor is it particularly expensive for companies that provide Internet telephone services to also provide telephone services through PSTN/ISDN networks.

47. This means that a small, yet nevertheless significant and lasting price increase could encourage those companies that either offer solely Internet phone services or solely PSTN/ISDN telephone services to offer both of these options. The PTA therefore considers that there is substitutability between Internet telephone calls and telephone services through PSTN/ISDN networks, also on the supply-side.

2.2.8.5 Interconnection of Internet phones

48. Electronic communications companies that offer Internet phone services have made interconnection agreements with other companies that offer comprehensive telephone services. Agreements on interconnection of Internet phone services do not differ greatly from agreements on PSTN telephone services. A network call can be comprised of origination/transit and termination, like other phone calls. The PTA considers that one must regard wholesale services in Internet phones as part of fixed telephony services in fixed networks in the same way that retail services in Internet telephones are considered to belong to the same service market as PSTN fixed telephony services.

2.2.8.6 Conclusion with respect to Internet telephones

49. With reference to the discussion here above it is the conclusion of the PTA that termination of calls in Internet phones which use telephone numbers is part of Markets 1/2016. The PTA considers it appropriate to consider that the nomadic service belongs to the relevant market as it uses telephone numbers from the public telephone system and as the price of the service and the manner in which it can be used are in most respects similar to traditional fixed telephony service.

50. Termination markets are generally subject to obligations for technical reasons that have already been covered. The PTA considers it normal that termination of nomadic service be included in this. In the same manner, the nature of the service makes it necessary to maintain price obligations on termination rates of such service as there would otherwise be an opening for entry of new parties to the market who could plan to misuse the service by charging excessive termination rates.

2.3 Conclusion of the PTA on the definition of service markets for call termination in fixed networks

51. The PTA has come to the conclusion that the definition of Market 1/2016 to be found in the Recommendation apply in this country. The PTA will, in the following market analysis use the following definition of Market 1/2016:

Call termination on individual public telephone networks provided at a fixed location.

This refers to that part of a call which is neither categorised as origination nor transit of a call. The service considered to be part of this market is the termination of a call and the choice of route at the termination end of a call. Termination constitutes transit of a call from the preceding stage in the route of the call (origination or transit) through a telephone exchange and by way of local loop or by any kind of fixed line connection from a network connection point to the party being called.

52. Telephone calls to Internet service providers (dial-up connections) do not belong to the market for call termination.

53. Calls belong equally to the market regardless of whether they are between networks or totally within the same network.

54. The PTA considers there to be no reason to distinguish between calls of individuals on the one hand and companies on the other. Corresponding underlying wholesale aspects of individuals' calls and those of companies must belong to the same market.

55. The PTA considers various service items offered in wholesale in connection with call termination and that are necessary to enable interconnection between networks are part of the market.

56. Termination in a fixed telephony network belongs to the relevant market even where the call originates in another kind of network.

3.0 Definition of geographical market

3.1 General

57. A geographical market covers a geographical 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 geographical area from neighbouring area where conditions for competition are significantly different. In assessing demand-side substitutability, it is appropriate to consider customers' tastes and geographical purchasing patterns. It is customary to demarcate geographical 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.

58. In accordance with the ESA Guidelines¹⁶ one must take into account and define the market as that geographical area where the product in question is offered to customers with similar and sufficiently homogeneous competition conditions. When markets are defined geographically it is not necessary for the competitive conditions of electronic communications companies to be exactly the same. It suffices that they are similar or sufficiently alike and for this reason it is only areas where competition circumstances are really "different" that cannot be considered to be the same geographical market.

59. Among the significant factors when assessing geographical markets are the nature and characteristics of the product or service in question, possible entry barriers and/or customer behaviour, the number of service providers, a clear difference in market share of companies in the area in question and surrounding areas or a significant price difference between areas. Then one can examine whether there is a difference in marketing and/or quality of service between geographical areas.

60. BEREC (previously ERG) has issued Guidelines that constitute a joint position on various aspects relating to the geographical division of markets¹⁷. There it is stated among other things that the increased distribution and increased market share of new electronic communications networks can in some locations have led to conditions for competition being different between particular regions within the same state. Should there be any doubt as to whether a country is all one market, then it is advisable to begin by performing a simple preliminary examination of market conditions, taking into consideration demand and supply substitutability between areas and where the homogeneity of the competition environment is examined with respect to the distribution of new electronic communications networks, pricing and the characteristics of services. 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.

3.2 Call termination

61. In its analysis from 2012, the PTA came to the conclusion that the geographical demarcation of the wholesale market for call termination in individual public telephone

¹⁶ See Section 2.2.2

¹⁷ See BoR (14) 73 from 5 June 2014 - BEREC Common Position on Geographic Aspects of Market Analysis (definition and remedies).

networks provided at a fixed location was the whole country and there have not been significant changes to the criteria for this assessment since the analysis was made.

62. The Síminn fixed line network reaches all inhabited areas in the country. The copper local loops of the subsidiary Míla are installed into all homes in the country and are connected to the Síminn telephone exchanges throughout the country. The same laws and regulations apply to the operation of fixed telephony networks everywhere in the country and a company's licence to operate such a network applies throughout the country and the rules governing universal services lead to a duty to have such connections on offer for all citizens. All companies on the market offer one price for public telephone services provided at a fixed location at all locations in the country. The PTA further considers that there is no difference in preferences or purchasing pattern of users by region. In the opinion of the PTA, it is not possible to demarcate an area where conditions for competition are significantly heterogeneous to that which applies elsewhere in the country.

63. Circumstances are such that clear and stable geographical boundaries can generally not be found for the networks of the network operators that have been installed or are being developed. The network operators with the exception of Míla that are now operating are still expanding their network distribution. Distribution does not follow any particular trend but rather seems to be quite unpredictable and even random in some instances.

64. There have been no significant changes in the structure of fixed telephony networks since the last analysis was made in 2012. The coverage of the Síminn fixed line network is the same as before. The distribution of the Vodafone network has increased considerably, and the company now offers call termination in its own fixed network at many locations in the country. The increased coverage of the Vodafone network supports the conclusion that the country is one market. The addition of the networks of Símafélagið, Hringdu, Tismi and Nova in the Capital City Area are not such that they affect the geographical demarcation of the markets as these networks are small and the share of these companies is very low.

65. The difference in quality and service is one more issue that one has to take into account and assess whether it impacts the geographical division of the market. In the opinion of the PTA there is no significant difference in quality and service by region and the competition environment does not vary by region in this respect.

66. On the basis of the above specified preliminary investigation, the PTA considers there to be no need to make a more detailed analysis of geographical circumstances on the wholesale market for call termination in the public telephone network provided at a fixed location. Competition conditions are 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 to network infrastructure provided at a fixed location are still unclear. With the above in mind, the PTA conclusion is the same as before, i.e. the geographical demarcation of the wholesale market for call termination in the public telephone network provided at a fixed location, is the whole country.

4.0 General comments on the fixed telephony market

4.1 Market development

67. After the state monopoly on operating electronic communications was lifted in 1998 the first indications of competition appeared on the market which was based on pre-selection, where the user selected a prefix in front of a normal telephone number, and in this manner was connected to the service provider he chose to buy the call from. Initially the new companies concentrated on international calls as their pricing gave the most opportunities for competition. On the corporate market there was also competition in the form of direct connections with larger companies. With the Electronic Communications Act no. 107/1999, the provision was fixed in law where companies with significant market power in fixed line network fixed telephony were obliged to publish a reference offer for interconnection, to practise non-discrimination and to offer interconnection at a cost-analysed price.

68. In December 1999 the issue of number portability in fixed line networks was addressed, and that was an important step in enabling competition as it was then easier for customers to change service provider if they could keep their existing number. In April 2000 fixed pre-selection was introduced which meant that calls were all directed to a specific service provider without having to dial prefix with each call. Fixed pre-selection facilitated the entry of new companies into the fixed line phone market. With this arrangement electronic communications companies could offer either comprehensive fixed telephony services or just specific categories of calls, for example, international calls, without having to make very major investments and the user was freed from the inconvenience of needing to select a prefix for each call.

69. When the first PTA analysis of fixed line public telephone markets was made in 2008 there were three companies that sold public domestic fixed telephony services at retail level, Síminn, Vodafone and Tal which has now merged with 365 miðlar. A number of smaller companies sold only prepaid telephone cards for calls to foreign countries. In the next PTA analysis of the market, two companies had entered at retail level i.e. Hringdu and Símafélagið, and Nova which offered fixed telephony solely on the corporate market. Prepaid telephone cards for international calls were still being offered but the parties selling them were not the same ones as before. Heimsfrelsi had disappeared from the market, Atlassími merged with Tal and a new company called GlobalCall had entered the market.

70. There are now 10 companies that offer fixed telephony on the retail market, i.e. Síminn, Vodafone, 365 miðlar, Nova, Hringdu, Snerpa, Símafélagið, Hringiðan, Tismi and GlobalCall.

71. Síminn is by far the largest electronic communications company in Iceland and offers comprehensive electronic communications services. On the fixed telephony market, the market share of the company by number of subscriptions was about 62% in 2015 which is a drop of about 5% in the period 2011-2015. The company previously had a monopoly in electronic communications and was owned by the state until 2005. In 2007 the operation of the Síminn core network was placed in a separate company, Míla. Despite this separation, the companies are closely related and are both part of the same company group. Síminn and/or Míla have been designated as having significant market power on most of the markets that have been subject to analysis by the PTA.¹⁸ Síminn owns and operates telephone exchanges across the whole country

¹⁸ See overview of market analyses on the PTA website:<http://www.pfs.is/fjarskipti/markadsgreining/>

and sells telephone services to homes and companies and for this purpose it leases trunk lines and local loops from Míla. The parent company Skipti which formerly held ownership of Míla, Síminn and more subsidiaries in telecommunications, information technology and media operations, has now been incorporated into Síminn and dissolved. Míla has thus become a subsidiary of Síminn instead of an affiliate. Síminn was registered on the stock exchange (Nasdaq Iceland) in October 2015 and the company’s largest shareholders are pension funds and investment funds.

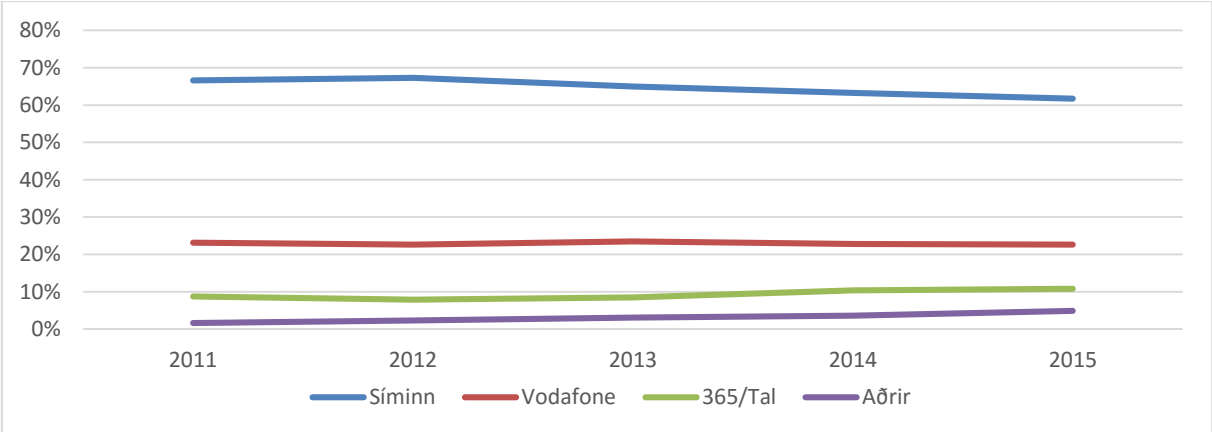
72. Vodafone is the next largest electronic communications company on the fixed telephony market with about 23% market share by number of subscriptions and this company’s share has been stable in recent years. The number of telephone exchanges owned by Vodafone has increased in recent years and the company now operates dozens of exchanges across the country. The company was registered on the stock exchange in 2012 and is mostly owned by pension and investment funds.

73. 365 miðlar is the third-largest with respect to share of the fixed telephony market with about 11% market share in 2015. The company does not operate its own telephone exchange to provide fixed telephony service and only operates on this market as a resale party at retail level.

74. The companies Nova, Hringdu and Símafélagið operate telephone exchanges in the Capital City Area. GlobalCall only sells international calls in retail and does not have interconnection with the fixed public telephone network. This means that the company does not operate on the relevant wholesale market. Snerpa provides resale service to its customers who are connected to the company’s bitstream or fibre-optic networks which cover municipalities local to the company in the West Fjords. Hringiðan only operates by reselling and a new company called Tismi has made an interconnection agreement and has been allocated numbers. The total share of the above specified companies was about 5% in 2015.

75. The following figure shows market development of companies on the retail market, on the basis of number of subscriptions in fixed telephony service for the period 2011-2015.

Figure 4.1 Market share by number of subscriptions in fixed telephony service for the period 2011-2015



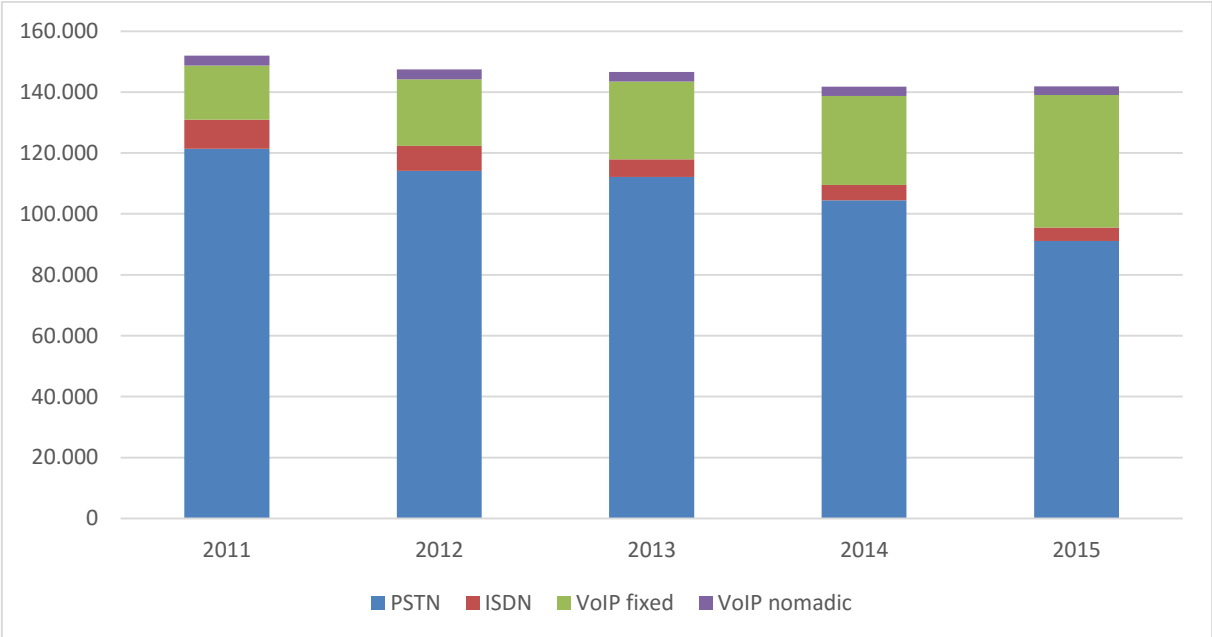
Source: Post and Telecom Administration

4.2 Changes in demand for fixed telephony services

76. Up to the year 1997 there was steady growth in demand for user lines in the fixed line telephone system (PSTN). In 1996 ISDN connections were first offered and they gave the possibility of having two connections active at the same time, for example, Internet and telephone. Demand for ISDN grew quickly in the first years after its introduction and demand for PSTN decreased accordingly. Around the turn of the century the number of subscribers and the use of fixed telephony peaked which can be attributed to the use of PSTN and ISDN for access to Internet service with dial-up through a modem. Since that time the number of subscriptions has steadily declined, particularly through traditional fixed telephony, i.e. PSTN. The number of subscribers in PSTN service was in excess of 140,000 in 2008 and now is just over 91,000 at the end of 2015.

77. Use of VoIP has increased significantly in recent years. Users of VoIP telephones through a fixed network connection point were just under 6,000 at the end of 2008 while they were 43,000 at the end of 2015. The number of users in nomadic service has been relatively stable and there were just under 3,000 users at the end of 2015. Despite this growth in the number of subscribers to VoIP service, the total number of subscribers to fixed telephony is on the decline.

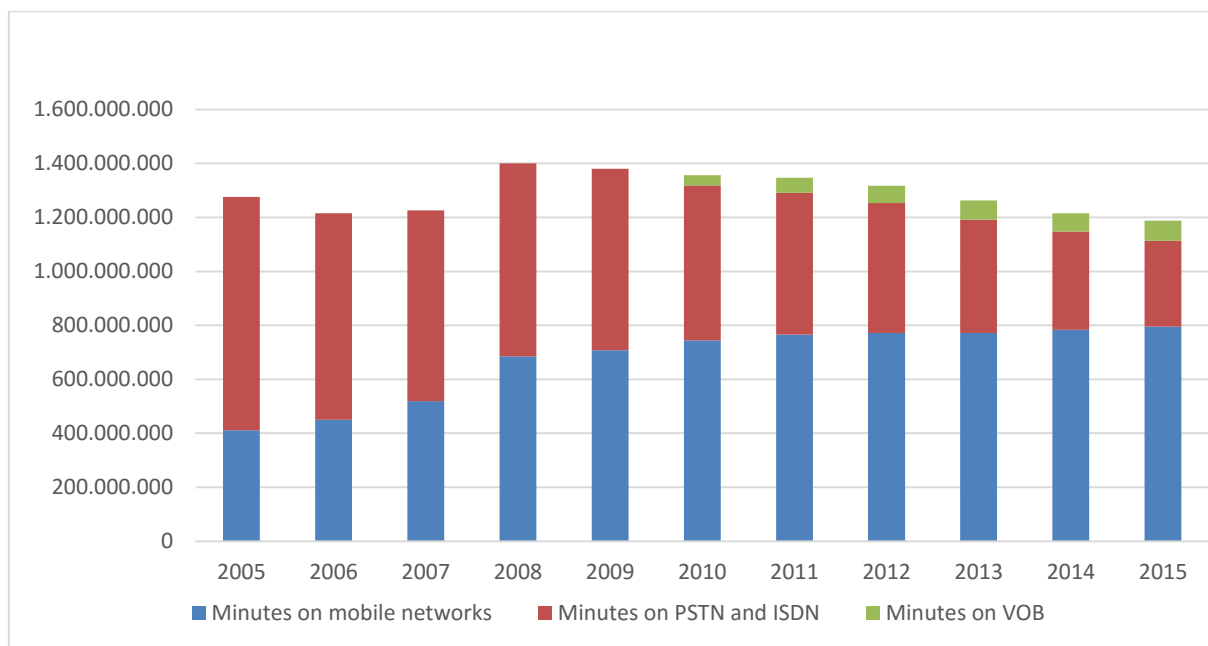
Figure 4.2 Number of subscriptions to fixed telephony service by access method 2011-2015



Source: Post and Telecom Administration

78. Changes in the amount of telephone traffic on wholesale markets for call termination are proportionate to changes in traffic on the retail market for fixed telephony service. There have been significant changes to calling patterns in the fixed network system. There has been a significant decline in calls that originate in the fixed line system from over 2 billion in 2001 to about 582 million in 2011 and the volume dropped to under 400 million minutes in 2015. This change results among other things from changed circumstances on the telephone market. Internet services now almost exclusively received over bitstream connections using the xDSL technology over copper lines or fibre-optic. ISDN or PSTN dial-up connections have virtually disappeared. Finally, one can mention that telephone calls and SMS from mobile phone systems are also influencing factors.

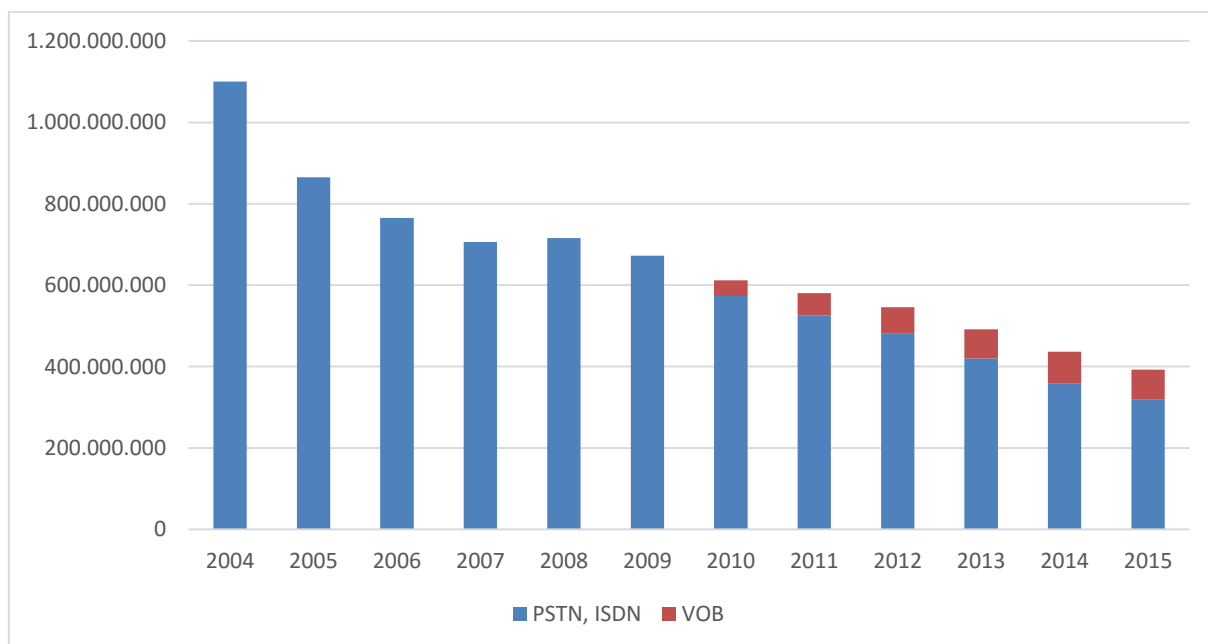
Figure 4.3 Number of minutes in telephone service 2005-2015



Source: Post and Telecom Administration

79. After high-speed connections entered the market the use of fixed line telephones decreased rapidly as users switched from dial-up connections to dedicated connections. There was a small increase in domestic telephone calls in 2008, but apart from that there has been a steady and level reduction in recent years. In the following graph we can see the development in the amount of fixed telephony network traffic from 2004 - 2015.

Figure 4.4 Development in total number of minutes in fixed telephony services from 2004-2015



Source: Post and Telecom Administration

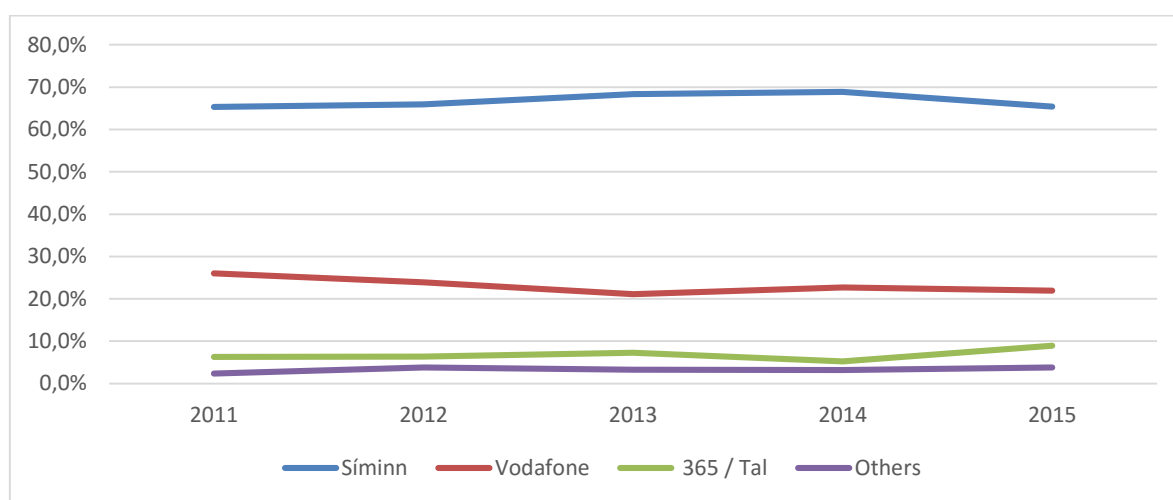
80. At the beginning of 2016, Síminn announced its plans to parties to the market and to the PTA, to migrate fixed telephony services to IP. Síminn then intended to publish a schedule

before the end of April 2016 with the dates for the migration of the company's telephone exchange system from PSTN to IP, where one year's notice would be given, such that the first changes would be made in April 2017 and where by the end of 2020 the migration will be completed. Síminn has not yet announced such a schedule with dates.

81. There are 6 companies operating today on the wholesale market for call termination in fixed telephony networks, i.e. Síminn, Vodafone, Símafélagið, Hringdu, Tismi and Nova, where the companies operate their own telephone exchanges and can thus terminate telephone calls to the relevant customers in their own fixed network.

82. The following figure shows market development of the companies' market share by number of subscriptions in fixed telephony service for the period 2011-2015.

Figure 4.5 Market share by number of minutes in fixed telephony service for the period 2011-2015



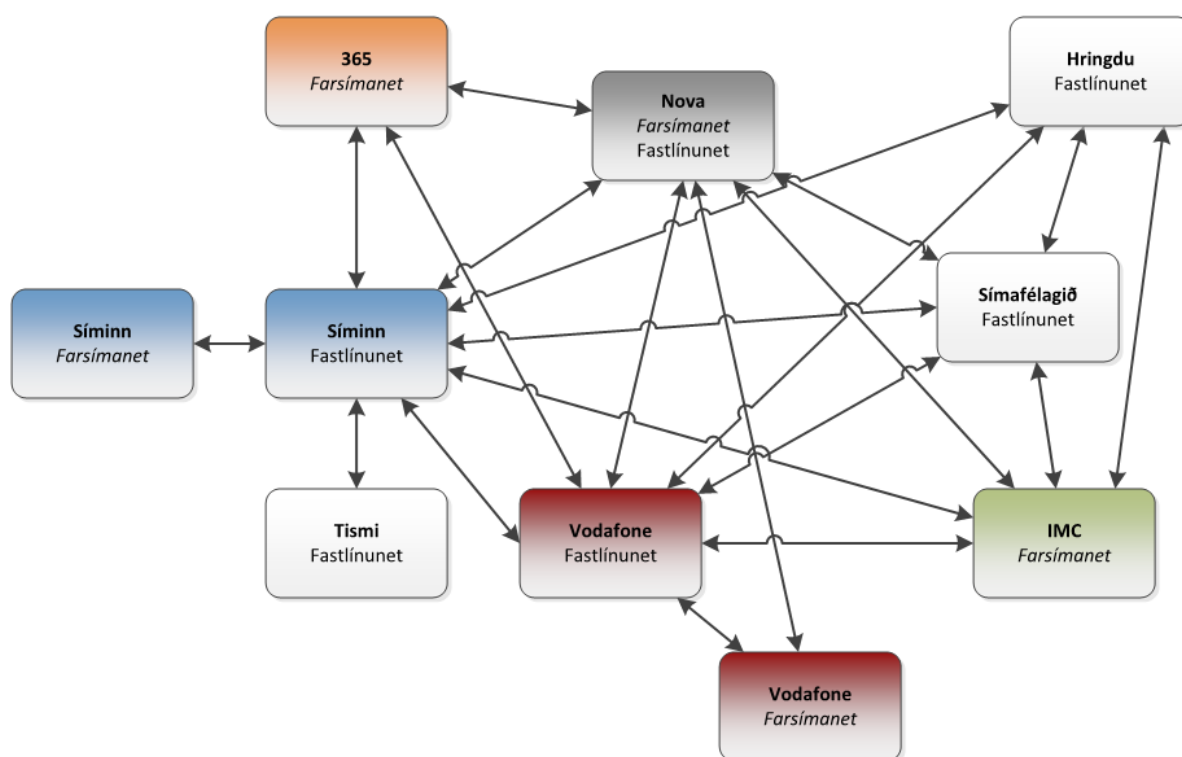
Source: Post and Telecom Administration

4.3 Interconnection of fixed networks

83. Telephone calls often go through two or more electronic communications networks. Traffic that goes between networks is called interconnection traffic and locations where the traffic passes from one network to another are called interconnection points. Interconnection can take place in various ways, depending on which networks end users are connected to.

84. There has been a very large increase in interconnection of networks since 2008. As one can see in figure 4.6 there are 6 fixed line networks and five mobile phone exchanges in operation that interconnect in this country. The majority of these networks have more than one interconnection. All companies that have a fixed line network exchange have an interconnection with the Síminn fixed line network. These companies are Vodafone, Símafélagið, Tismi and Nova. IMC and 365/Tal on the other hand only have interconnections with their mobile phone networks.

Figure 4.6 Interconnection of telephone networks in Iceland



Source: Post and Telecom Administration

85. As is shown in figure 4.6, the Síminn mobile phone network does not have direct interconnections with other networks than with the company's own fixed network. All other networks, fixed network or mobile network, have established interconnections with other parties to the market. In the PTA decision on obligations on the market, previously number 16/2004¹⁹ (subsequently number 7/2008) on call termination in mobile phone networks (now Market 2/2016) it was stated that the companies are unauthorised to make it a condition for interconnection that mobile phone network traffic first goes through the companies' fixed networks. This was emphasised in the PTA Decision nos. 18/2010, 3/2012 and 20/2015²⁰ on the relevant market. This means that there is transit in all calls to and from mobile phone networks over to networks of other companies. According to the newest edition of the Síminn reference offer for interconnection of fixed line networks (RIO), there is no charge collected for transit over to a mobile phone network if the counterparty has the same pricing structure. Síminn thus does not collect a special charge for transit over to its mobile phone networks today.

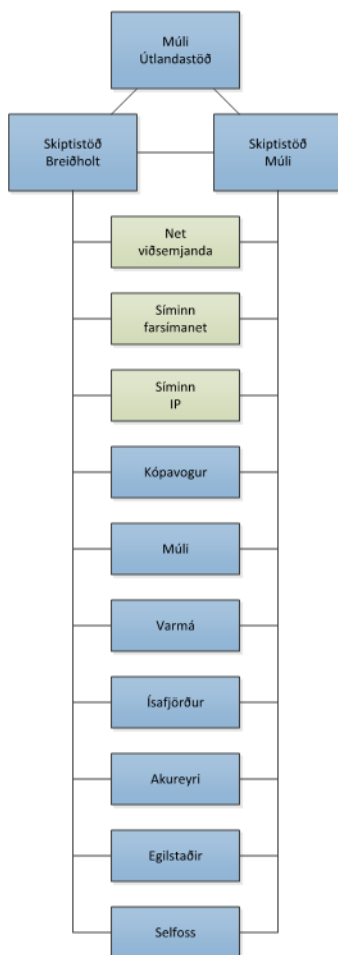
86. Síminn, which is by far the largest company on the fixed telephony network, operates a traditional PSTN fixed line network. Fixed line networks comprise user lines, telephone exchanges and connections. Customers connect to the telephone exchanges over user lines and the connections connect the exchanges together. Síminn has 200 or more automatic telephone exchanges. They include two international exchanges (ISC) which handle telephone traffic between Iceland and other countries and two switch exchanges that switch traffic between

¹⁹ See the decision of the Post and Telecom Administration from 20 July, 2006.

²⁰ (See Paragraph number 183, page 46 in Appendix A on the designation of companies with significant market power and on the imposition of obligations on the wholesale market for call termination in individual mobile phone networks (Market 7), dated 31 July 2015.

international exchanges, regional exchanges, mobile phone exchanges, and the exchanges of competitors. In addition to this, some of the very largest corporate customers are connected directly to the exchanges. Regional exchanges are now nine, five in the capital city area and four in the provinces. There are many outlying exchanges connected to them.

Figure 4.7. The Síminn network



Source: Síminn

87. Other companies are connected to the Síminn network in the switching stations at Breiðholt and Múli. All telephone traffic passes through them to and from all the regional exchanges (Múli, Breiðholt, Kópavogur, Varmá, Ísafjörður, Akureyri, Egilsstaðir and Selfoss). This arrangement makes it unnecessary for other undertakings to connect to each regional exchange as the only interconnection points are in the Reykjavík area. Thus interconnection is based on calls between regions (single transit). It however means that undertakings located outside the greater Reykjavík area must lease a connection to Reykjavík in order to connect to Síminn's interconnection points.

88. Vodafone grants other electronic communications undertakings interconnection with the company's network, on request. The interconnection points are at the Miðbær exchange, and the exchange in Hafnarfjörður. Vodafone telephone exchange system comprises more than

100 telephone exchanges across the country. Vodafone does not have a local loop system but leases access to local loops from Mfla.

89. In many places abroad, it is the custom to divide interconnections into three price categories by region, depending on whether the interconnection area is to a specific location (local), to a region of the country (single transit) or to the whole country (double transit). Such division into areas does not however exist in Iceland as there is only one price category for interconnections which is based on calls between regions (single transit).

90. In the Síminn reference offer for interconnection of fixed networks there is an offer for origination, termination and transit of calls. Origination of calls was bought by companies that use pre-selection or fixed pre-selection to provide users that are connected to the Síminn network with fixed line telephone service. Termination is purchased by companies that carry telephone calls that terminate in the Síminn network. Transit of calls is bought by companies that need to move calls to company networks with whom they have no direct interconnection.

4.4 Interconnection fees

91. The PTA published its Decision no. 19/2015 on 30 July 2015 on wholesale tariffs for call termination in fixed public telephone networks (then Market number 3/2008). In the Decision it is prescribed that the conclusion of benchmarking made by the Administration will be the basis for maximum prices for call termination. The PTA decision on wholesale tariff is based on Decision no. 36/2010 on the designation of companies with significant market power and on the imposition of obligations on the wholesale market for call termination in individual public telephone networks provided at a fixed location. Pursuant to this Decision, the PTA shall decide the tariff for call termination in individual public telephone networks provided at a fixed location with benchmarking in accordance to further detailed provisions in the Decision.

92. According to the Decision, the wholesale rate for call termination in fixed networks is ISK 0.16/minute and the connection charge was waived at the same time. This represented a considerable reduction from the wholesale prices, then in force which were ISK 0.63/minute with the addition of an ISK 0.62 connection charge for each telephone call. The new wholesale price came into force as a maximum price for Síminn, Vodafone, Nova, Símafélagið and Hringdu from and including 1 January 2016. The PTA will make such benchmarking annually. With a Decision on 28 October 2016, the PTA decided on maximum call termination price which will apply for the year 2017 and will be ISK 0.14/minute.

5.0 Evaluation of market power on markets for call termination in individual public telephone networks provided at a fixed location

5.1 General

93. Markets for call termination are unlike other electronic communications markets, to the extent that the market in the country as a whole is not the starting point. Analysis of the call termination market is based on the competitive position enjoyed by the service of each service provider. The service provider that controls call termination access in an individual network has a de facto monopoly on the market in question.

94. The PTA considers that there is no need with respect to Market 1/2016, to assess all criteria for significant market power as they are presented in the Guidelines. In the opinion of the PTA the most important factors for analysing the relevant market are market share, entry barriers and possible competition, countervailing buying power and price development. The PTA considers that assessment of those criteria that have been omitted here would not change the conclusions of the market analysis in the light of the special circumstances resulting from the definition of the call termination market.

5.2 Market share

95. 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 considered to have significant market power, but it can give strong indications as to whether a market dominance position exists or not. A very significant market share, i.e. over 50%, is on its own sufficient according to accepted case law, to designate a company 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 a market share of less than 40% can have single dominance. 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 dominance with another undertaking. 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.

96. In accordance with the definition of the wholesale market for call termination in individual fixed line networks, each electronic communications network is one market and thus there is only one company on each market. This means that regardless of how it is measured, each company has 100% market share in the relevant market. In accordance with the above one must consider that those companies that offer call termination in fixed line networks enjoy a monopoly. The companies in question are Síminn, Vodafone, Hringdu, Nova, Símafélagið and Tismi.

97. The previously mentioned 100% market share of all of the specified service providers, gives a strong indication that the companies enjoy significant market power on the wholesale

market for call termination in their own fixed line networks and that they can to a significant extent operate without taking into consideration customers or other electronic communication companies.

5.3 Price development

Price development can provide indications as to whether active competition exists or not. In 2008, before the first analysis of this market was published, the position was that Síminn was obliged to offer prices based on costs, but Vodafone on the other hand, was not subject to such an obligation. The Vodafone termination charge was then about 50% higher than the Síminn termination charge. With the PTA Decision in December 2008, obligations were imposed on both Síminn and Vodafone to the effect that their call termination rates should be cost-analysed. Síminn was to make a cost analysis and Vodafone to lower its prices in stages over four years until they were the same as those of Síminn.

98. From and including 2016 the pricing of termination in fixed networks has been based on benchmarking (PTA Decision no. 17/2016) in accordance with the obligation for price control imposed with the PTA Decision no. 36/2012. As pricing with Síminn and Vodafone has been controlled by the PTA during recent years, it is not possible to draw conclusions with respect to competition on the markets from price development on these markets.

99. The pricing of termination by new parties to the market did however indicate that there had been little change in conditions for competition on the termination market since 2008. As was stated in the PTA analysis from 2012, the minute rates for new entrants to the market that are not subject to obligations were higher than those of Síminn. All termination rates on the fixed telephony market have since been harmonised between parties to the market from 1 March 2013, in accordance to the obligation for price control in the PTA Decision no. 36/2012.

100. It is clear that network operators can still decide termination rates in their networks without much concern for their competitors, customers or end users. The PTA considers that pricing of termination by companies not subject to obligations at the beginning of their operations, clearly indicated that each network operator has significant market power in his own network.

5.4 Entry barriers, and potential competition

101. In general, potential competition from new service providers affects the behaviour – including prices – of dominant operators in the market. On the other hand access barriers of various kinds can weaken the prerequisites for possible competition and can even prevent competition.

102. Termination of telephone calls in networks is made in the network to which the recipient of the telephone call is connected. There is no existing technology in fixed line networks that enables any party other than the service provider of the recipient of a telephone call to offer the service of termination of telephone call. This is true both of service provided with conventional interconnection technology and of service based on Internet phone technology.

103. The key to the competition problem on this market can be found in the fact that other parties cannot offer this service and this is the fundamental reason for regarding each network as an independent market. Should developments lead to it being possible for other parties to

offer call termination in such circumstances, then this would lead to a fundamental change in the state of competition on this market. The PTA however considers that there is no indication that such technology will be introduced to the market in the foreseeable future.

104. The prevailing rule – that the calling party pays – also diminishes the effects of competition in the call termination markets. The reason is that the CPP principle gives users no incentive to switch service providers because new operators offering lower termination rates have entered the market.

105. In the PTA's estimation, an assessment of entry barriers has limited significance as long as potential competition remains insignificant. Therefore, the PTA considers it unnecessary to evaluate other possible administrative or market-related entry barriers.

5.5 Countervailing buying power

106. 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.

107. Calling parties' service providers constitute the demand side of this market. This could be fixed line and mobile phone companies, both domestic and foreign.

108. Three factors indicate that customers' countervailing buying power is very limited in Market 3:

- a) The original service provider has no choice concerning the demand for call termination.
- b) The original service provider has little possibility of refusing the counterparty comparable service when the traffic lies in the opposite direction because the Act on Electronic Communications generally requires that termination service be provided to those requesting it.
- c) The main rule that the calling party pays this means that there is little incentive for service providers to offer lower termination rates. High termination rates generate increased revenues at virtually the same cost, even if prices are lower. Furthermore, high termination rates can compromise competitors' operational conditions in the retail market.

109. Experience shows that companies that offer termination in their own networks, can adjust the pricing without much concern for competitors and users. It was only in the first years after competition was enabled that Vodafone offered the same termination rates as Síminn. Vodafone then increased its termination rates by about 50% in excess of those of Síminn and this difference remained until the obligation for price control was imposed on Vodafone in 2008.

110. Other new companies that have entered the market have usually had higher termination rates than Síminn. The difference has been up to 74%. Since 2013 all termination rates have been harmonised between parties to the market as a result of the tariff obligations imposed by the PTA to this effect. It seems that countervailing buying power does not exist on this market to the extent that it impacts pricing.

111. It is not possible to evaluate the impact of countervailing buying power on Síminn from circumstances that prevail today as Síminn is subject to obligations and does not decide its own termination rates. The PTA considers on the other hand that as the smallest sellers on the market are subject to little or no influence from buyers on the market it is possible to conclude that the largest seller, i.e. Síminn would not be influenced by smaller companies and would, in the same manner as other companies tend to decide its termination rates without concern for other parties on the market, where there are no obligations on price control.

112. The PTA considers that countervailing buying power on this market does not exist to the extent that it can influence competition and limit the seller's possibilities to operate without concern for competitors or customers. While the current technical arrangement remains in place, the PTA considers there to be no prospect of a change in countervailing buying power on the relevant market. This applies to all companies on the market, large and small.

5.6 Conclusion and designation of companies with significant market power on Market 1/2016

113. Today there are 6 companies that offer call termination in their fixed line networks that falls within the description of the relevant market. Síminn is the largest company, followed by Vodafone and the companies Hringdu, Nova and Símafélagið are considerably smaller while Tismi has newly commenced operations. In accordance with the definition of the relevant market all the companies have 100% market share in call termination in their own fixed telephony networks. As has been stated previously a company's persistent and high market share indicates that it has significant market power. According to the European Court case law, market share over 50% is on its own an indication of significant market power except in the case of unusual mitigating circumstances.

114. In the opinion of the PTA the relevant market is characterised by absolute entry barriers and possible competition is not foreseeable in the coming years. No technological innovations have seen the light of day since the last analysis was made on the market that could make it possible for more than one service provider to offer call termination concurrently to the user in an individual fixed line network.

115. In light of the above market analysis, all indications point to each net operator having significant market power for call termination in their own fixed-line networks. In order to come to another conclusion there would need to be factors that significantly influence the market power of the companies. Such factors would first and foremost constitute countervailing buying power. The market analysis indicates that there are no competition factors on the market that would create pressure on the price for call termination in fixed line networks. The technology does not, as things stand today, provides the possibility for substitutability in supply. There is no countervailing buying power whatever, neither at wholesale nor retail level, and there is nothing to indicate that competitors, customers or consumers can have an impact on call termination price.

116. With the above market analysis in mind the PTA intends to designate Síminn, Vodafone, Hringdu, Nova, Tismi and Símafélagið with significant market power on the market for wholesale call termination in individual public telephone networks provided at a fixed location.

6.0 Imposition of regulatory obligations

6.1 In general on obligations

117. Pursuant 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 lift 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 pursuant to the previous Electronic Communications Act, these shall be reviewed and either maintained, amended, or lifted in accordance with the results of the market analysis.

118. Article 27 of the Electronic Communications Act states that when an electronic communications undertaking is designated with significant market power, the PTA may impose on it obligations concerning transparency, non-discrimination, accounting separation, open access to specific network facilities, price control and cost accounting, as necessary for the purpose of promoting effective competition²¹. These obligations are described more fully in Articles 28 – 32 of the Act.

119. When selecting obligations to be imposed in order to solve specific competition problems, it is necessary to use several fundamental principles as guidelines.²² 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.

120. In a report from the European Regulators Group (ERG)²³ on ex-ante obligations²⁴ 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.

²¹ See also Articles 9 - 14 of the Access Directive.

²² See Article 8 of the Framework Directive.

²³ Now the Body of European Regulators for Electronic Communications (BEREC),

²⁴ Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework Final Version May 2006.

http://www.erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf

121. 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 development 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 step by step.

122. In selecting the obligations that are best designed to promote competition in a given market, it is often useful 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 effective competition.

123. Obligations are imposed on companies with significant market power with the aim of combating real and/or potential problems in the field of competition in the markets in question. Problems in the field of competition refers to any kind of behaviour by accompanied with significant market power 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 for doing this is not in fact that the party is misusing market dominance. It is sufficient that competition problems could possibly arise under given circumstances.

6.2 Competition problems in the market for call termination in fixed line networks

6.2.1 General

124. The main competition problems in the market for call termination can be attributed to the fact that the operator of the network where termination takes place has a monopoly for call termination for the customers that are connected to his network. There are insurmountable technological entry barriers to individual termination markets and it is not foreseeable that this will change during the period covered by this analysis. As long as the CPP principle applies there will be major limitations to active competition.

125. The competition problems that the PTA has defined generally apply to all termination in fixed-line networks. Here below there is discussion on competition problems on the relevant market but one must keep in mind that the great majority of terminations take place on Síminn network.

126. Discussion on competition problems in this analysis is analogous to the discussion in the PTA analysis of the market from 2012 as changes have not occurred on the market since 2012 that could lead to a change or solution in the problems that have characterised the market. For competition problems on this market, reference is further made to the ERG (now BEREC) report on the imposition of obligations.²⁵

6.2.2 Refusal of access

127. All things being equal, operators that offer call termination should have a normal incentive to offer interconnection. Network utilisation increases with the number of network users which indicates that those offering fixed-line connections wish to conclude interconnection agreements with others.

²⁵ Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework. Final Version May 2006. ERG (06) 33. The document can be seen here: http://erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf

128. On the other hand, it is possible to imagine circumstances where it could be advantageous for a large service provider with many users to reject interconnection based on call termination. This can be quite important with regards to smaller service providers with few users, and it would not have a marked effect on the quality of the larger company's telephone service even though users of the small service provider's network do not have the option of calling users connected to the large service provider. In this way, the large service provider could force small service providers out of the retail market. Rejection or delay in interconnection is a competition problem.

129. Service providers with a limited number of customers and capital are sometimes interested in concluding indirect interconnection agreements (so-called proxy agreements) at the outset instead of negotiating directly with all of the service providers offering call termination in the fixed-line network. Proxy connection refers to a third party offering a service provider termination in another service provider's network. Therefore, it is actually possible to conclude an interconnection agreement with only one other undertaking. A proxy agreement can prove to be less expensive than a number of interconnection agreements or than the cost of direct interconnection. If an undertaking does not have the option of interconnection with other fixed-line networks via proxy service (transit service), this can function in the same way as refusal of access and can represent a competition problem.

130. If an undertaking has no incentive to conclude interconnection agreements, obstructs the conclusion of such agreements by various means, or deliberately delays negotiations, the result is a situation much akin to refusal of access. It is typical that operators resort to such measures if they are required to comply with reasonable requests for interconnection but are not subjected to any defined time limits for negotiation. Delaying tactics can therefore be a competition problem even where a statutory obligation to grant access is in effect.

6.2.3 Excessive pricing

Service providers with significant market power in markets for call termination on fixed-line networks have both the opportunity and the incentive to charge termination rates in excess of underlying costs. Under such circumstances, termination rates will be higher than they would be in a market characterised by effective competition.

131. Smaller service providers of call termination in fixed-line networks can respond to excessive pricing by a larger party by raising their own termination rates accordingly, and vice versa. Until 2012, only Síminn and Vodafone were subject to price control. Other companies on the market charged prices for call termination that were significantly higher than those of Síminn and Vodafone. Before obligations were imposed on Vodafone, the company's call termination rates were 50% higher than those of Síminn²⁶.

132. Higher call termination rates from individual service providers have led to higher retail price for calls in to the networks in question. Today all the companies are subject to PTA price control in accordance with the price control obligation imposed on the companies with PTA Decision no. 36/2012. Almost all Icelandic electronic communications companies offer a similar price for calling all fixed networks and the wholesale call termination rates in individual networks are the same in accordance with the applicable obligation for price control.

²⁶ See the Decision of the PTA no. 36/2012.

133. Experience has shown almost from the outset that after the introduction of competition in fixed telephony services, companies that are not subject to price control have a tendency to raise their call termination rates excessively. It is the assessment of the PTA that the situation still prevails where neither the largest parties on the market nor others can prevent those that offer termination services from charging prices that are both unfair and inefficient from a financial viewpoint. The PTA also considers that should it be decided that these service providers are free to price their service then this could lead to an abnormally high price. The PTA considers excessive pricing to be the most apparent competition problem originating in smaller companies on the market. In comparison with Síminn, Vodafone and foreign companies that were included in a comparative study for the PTA Decision no. 15/2011²⁷, the prices of Hringdu and Símafélagið were higher than those of other companies and are not in step with what one would expect from companies that operate call termination services in an efficient manner. The PTA considers high pricing to be a problem that puts competitors and consumers at a disadvantage. At the outset of competition in the fixed telephony markets in Europe there were normally no objections raised when call termination rates of new entry companies were higher than those of market incumbents. Higher call termination rates were seen as assistance for small players entering the market. When the PTA was preparing the above mentioned Decision no. 15/2011, this situation was considered no longer acceptable. First, more than 10 years had passed since the market was liberalised; second, experience had shown that asymmetrical termination rates were not the most advantageous way to promote effective competition in the markets. For this reference is made to the ERG common position on symmetry of fixed call termination rates²⁸ and to the ESA Recommendation on termination rates²⁹ and furthermore to the corresponding Recommendation from the EU³⁰ and to the Explanatory Notes on that Recommendation.³¹

134. High termination rates are disadvantageous to competition for those service providers in the retail market for telephone services (on fixed and/or mobile networks) that do not offer call termination in the network concerned. Such parties therefore do not earn revenue from call termination. As a result, the PTA considers that prices could become abnormally high if price controls are not in effect and that abnormally high prices could therefore be viewed as a potential competition problem in all call termination services.

6.2.4 Informal price-fixing

135. Service providers that offer call termination and compete at the retail level can agree to charge termination rates that are to the advantage of both operators which is actually informal

²⁷ PTA Decision no. 15/2011 on cost analysis of Síminn wholesale prices for origination, termination and transit of telephone calls in the public telephone network provided at a fixed location.

²⁸ ERG's Common Position on symmetry of fixed call termination rates and symmetry of mobile call termination rates ERG (07) 83 final 080312.

²⁹ EFTA Surveillance Authority Recommendation of 13 April 2011 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EFTA States.

http://www.eftasurv.int/media/internal-market/ESAs-Recommendation-on-termination-rates.pdf?bcsi_scan_A7E1E556D7B2F94D=SP9V6znNsFp1+tO3LHnKgItGi8gFAAAA/sN9AA==&bcsi_scan_filename=ESAs-Recommendation-on-termination-rates.pdf

³⁰ Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU - C(2009) 3359 final.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF>

³¹ COMMISSION STAFF WORKING DOCUMENT accompanying the COMMISSION RECOMMENDATION on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU EXPLANATORY NOTE {C(2009) 3359 final} {SEC(2009) 599}

http://ec.europa.eu/information_society/policy/ecommm/doc/implementation_enforcement/eu_consultation_procedures/explanatory_note.pdf

price-fixing. The typical method used is to charge high reciprocal termination rates in circumstances under which termination rates are not monitored.

136. High reciprocal termination rates in the fixed-line network distort the competitive position among service providers offering fixed-line phone services based on carrier selection, those offering mobile phone services, and those offering international calling with termination in Iceland. As a result, informal price-fixing among those offering call termination in the fixed-line network could constitute a competition problem.

137. Síminn has been required to charge cost-oriented termination rates since the fixed-line phone market was deregulated in 1998; therefore, price-fixing between Síminn and one or more other service providers has not been a real problem. Neither does it appear that informal price-fixing has taken place among other service providers than Síminn. Nonetheless the PTA believes that such a problem could arise if termination rates were not monitored.

6.2.5 Price discrimination

138. An operator that offers call termination can have the incentive to offer varying terms to different customers. For example, it is conceivable that a service provider wishes to charge a higher termination price to operators that offer him stiff competition in the retail market than to other service providers. Such an operator could also charge lower prices to related parties than to others.

139. When those that request termination are discriminated against in this manner, this can distort competition on the retail markets and can create a competition problem.

140. It is primarily possible to view price discrimination between on-net and off-net calls as a potential competition problem when the service provider has a proportionally large share of customers on the retail market. This type of price discrimination means that an undertaking charges a higher termination price for calls originating in other telephone networks than for calls originating in its own³². Under these circumstances these service providers would be forced to increase their retail prices in order to avoid distortion of the correct proportions/price pressure. Price discrimination of this kind can give retail services the largest party a competitive advantage against other competitors on the retail market.

141. This potential competition problem thus becomes even larger as the difference between on-net and off-net call termination rates increases. Price discrimination between these two service categories is a potential competition problem.

6.2.6 Discrimination with respect to factors other than price

6.2.6.1 General

142. An undertaking with significant market power could have the incentive to discriminate in favour of its own services in the retail market at the expense of its competitors. Such discrimination could involve service elements, the quality of technological connections, service

³² With the PTA Decision no. 13/2012, from 7 May, 2012, the PTA came to the conclusion that Síminn had breached the obligation for non-discrimination on the wholesale market for call termination in mobile phone networks (Market 7) by defining calls between customers of Síminn and Tal, as on net calls. In this manner, charges for call termination were not collected between these companies while at the same time Síminn collected maximum call termination rates from Vodafone and Nova. Síminn was given the option the option of correcting or repaying Vodafone and Nova the call termination rates it had collected since August 2010.

levels, information quality, etc. It is also possible that the party providing termination services will have the incentive to delay negotiations for interconnection and will make unreasonable demands as regards termination (e.g. collateral security, bundling of services, etc.). This type of discrimination can function as an entry barrier and can disrupt the competitive foundations in the retail market; therefore, it can be a potential competition problem.

143. In the PTA's estimation, this competition problem affects Síminn's call termination service in the fixed-line network more than that of other operators in the call termination market. The reason is that other operators that offer call termination have limited opportunities to discriminate because of Síminn's strong position, both as a dominant seller and as a customer in the termination market.

6.2.6.2 Unannounced changes in prices and products

144. Termination charges are generally a rather large portion of the retail price for fixed-line telephone calls. If the seller raises its termination rates before the operators that purchase call origination from the company have a chance to adjust their retail prices accordingly, this could reduce these operators' profits temporarily.

145. It is also possible to change the content of a given service without this necessarily being reflected in the price. Changes in service can also lead to changes in retail products that should be announced with advance notice. If this is not done in a timely manner, it can cause problems and generate discontent which weakens its reputation in the market.

146. The PTA considers that delays in announcements on changes to price of services can create problems on the relevant market. This applies particularly when retail departments of service providers with significant part market power at the wholesale level are provided with the information in question ahead of their competitors.

6.2.6.3 Cross-subsidy

147. In the opinion of the PTA, it is important to consider competition problems related to Síminn's call termination in the fixed-line network in the context of the retail market for fixed-line phone services. The PTA is of the opinion that a competition problem exists if Síminn uses revenues from call termination to subsidise its own retail services. Such cross-subsidy could distort competition in the retail market for fixed-line phone services which can prove detrimental in the campaign for a sustainable competitive environment. Cross-subsidy that involves other elements in Síminn's operations could also prove to be a competition problem; cf. horizontal transfer of market power. Cross-subsidy is therefore anti-competitive, but it can also foster inefficient utilisation of capital.

6.3 Obligations in force

6.3.1 General

148. In 1998 when the monopoly on the electronic communications market was lifted a special operations licence was issued for Síminn. The licence specified obligations for the

interconnection of fixed line phone networks, such as with respect to access, transparency, non-discrimination, accounting separation, and price control. Electronic communications companies other than Síminn were not subject to specific obligations with respect to interconnection of fixed line phone networks with the exception that they were obliged to make an agreement on interconnection pursuant to Paragraph 1 Article 23 of the Electronic Communications Act no. 107/1999³³.

6.3.2 Market obligations for call termination

149. With the PTA Decision no. 36/2012 dated 14 December 2012, the following obligations were imposed on Síminn, Vodafone, Símafélagið, Hringdu and Nova for call termination.

Obligation to provide access

150. This obligation means that the above specified companies are obliged to accede to normal and fair requests of an electronic communications company for access to fixed line network and for services for call termination at wholesale level. Agreements must be completed without delay and the companies must specifically justify with arguments any decision to refuse to make an agreement on access.

Obligation of non-discrimination

151. The companies must practise non-discrimination both with respect to price and other factors, both for external operations and between internal operations and external operations. The dissemination of information from the relevant department should be in a comparable manner whether to third parties or to other departments within the company related parties.

Obligation of transparency

152. The companies shall among other things prepare and publish a tariff which shows all prices for termination of telephone calls in fixed line networks and of related services. In addition to this, Síminn shall publish a detailed reference offer. All changes shall be notified with notice.

Obligation of accounting separation

153. The obligation was imposed on Síminn and Vodafone for accounting separation for fixed telephony networks. Accounting separation should be organised with respect to revenue, costs, assets and liabilities for fixed telephony services in wholesale and retail. Síminn and Vodafone should provide to the PTA on an annual basis a breakdown of the operational accounts and balance sheet for wholesale and retail service for fixed telephony networks along with a statement of the division of indirect costs that were not possible to allocate through comparison with other cost items.

Obligation of price control

154. Call termination rates shall be based on annual benchmarking with states within the EEA that applied to the BU-LRIC methodology in cost analysis in accordance with the ESA Recommendation from April 2011. During the period of validity of the above specified Decision, termination rates were then to be updated annually on the basis of new benchmarking. In accordance with the ESA Recommendation, the PTA prescribed symmetrical termination rates and that the maximum termination rates for Vodafone, Símafélagið, Nova and Hringdu would be the same as the Síminn cost-analysed termination rates. The above specified

³³ A corresponding provision is now in Article 24 of the Electronic Communications Act no. 81/2003.

maximum termination rates, ISK 0.63 per minute and ISK 0.62 connection charge on each call, were to apply for all companies from and including 1 March 2013 until the next PTA benchmarking had taken place.

6.4 The impact of existing obligations

155. Obligations in force have, as could be expected, a direct impact on the call termination rates of Síminn, Vodafone, Nova, Hringdu and Simafélagið as they prescribed a reduction in call termination rates in their fixed networks. The obligations have had no more impact on call termination rates than that which was specifically prescribed. The companies have not reduced their price further than they were obliged to.

156. The reduction and the levelling of termination rates of the companies had a levelling effect on retail prices for on-net calls in their fixed networks. This can be seen in amended subscription options of all fixed line telephony companies. Subscription options now include to a greater extent than before, a significant amount of usage for a fixed price, even for unlimited calls to other domestic fixed networks.

157. With the reduction of termination rates, fixed line telephony companies lose some revenue. It is however difficult to say how this impacts their performance as there are many other influencing factors. If a reduction in call termination rates is applied to all parties to the market, then this equally reduces costs for purchase of call termination service which means that it is not possible to assert that the reduction of call termination rates is burdensome when one looks at the broader picture. If traffic between phone companies is symmetrical, then the reduction of call termination rates has no impact as costs are reduced in accordance with reduced revenue. The reduction of call termination rates will mean that costs and revenue in fixed telephony services will be generated in a more transparent manner than before, and a better base will be created for competition on the fixed telephony market.

158. There are now ten companies operating on the fixed telephony market. Of these companies six operate some kind of fixed network, three companies resell fixed telephony services and one company only sells international telephone calls. This is something of an increase from before. Síminn has by far the largest market share whether by number of minutes or by subscriptions. The next largest is Vodafone and then 365 miðlar. There are then 5 companies that have a total of 4% market share by number of minutes.

159. It is the opinion of the PTA that the obligations that were imposed in 2012 have had the effect of significantly reducing wholesale prices. Furthermore the obligations have created a basis for the entry of new parties to the market.

160. There is however a long way to go before active competition has been established at wholesale level on the fixed telephony market. It is therefore necessary to maintain obligations on the market. There is furthermore a need to react to the high termination rates of those parties to the market today that are not subject to obligations.

6.5 Proposals for obligations

161. On the basis of market analysis the PTA has come to the conclusion that it is appropriate to maintain obligations on companies on the market for call termination in individual public telephone networks provided at a fixed location. The PTA considers that obligations should be

maintained on Síminn, Vodafone, Símafélagið, Hringdu and Nova and that obligations should be imposed on other companies that offer call termination in their fixed telephony networks. The obligations that were imposed in 2012 and that the PTA intends to maintain, are mostly unchanged. As experience has been gained from a new approach (benchmarking) to price control, the PTA plans to lift the obligation on accounting separation from Síminn and Vodafone. The obligation on Síminn for publishing a reference offer will be lifted at the same time. In this Section the content of these obligations will be presented in more detail.

6.5.1 Obligation to provide access

162. According to Paragraph 1 of Article 28, Paragraph 1 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. Paragraph 2, Item g of the same Article states that it is permissible to require that electronic communications undertakings interconnect networks or network elements. Further to this it is stated in Item b of the Article that it can be demanded that such parties offer specific services in wholesale which a third-party resells and Item h prescribes virtual network access to electronic communications systems of such parties.

163. The PTA has assessed whether the access requirement for call termination is technologically and financially realistic, and also 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. Given current technology is impossible to install one's own facilities for termination in the network of another company. The PTA considers it relatively easy for all electronic communications companies that operate fixed telephony network services to provide access for call termination in their networks, and that this is reasonable with a view to the initial investment. The PTA considers the obligations to be in the interests of competition in the long-term and that they will encourage an increase in service offers.

164. There is no record of electronic communication companies having been denied access to reciprocal interconnection. On the other hand, there are recorded examples that the negotiation process in making interconnection agreements has been too lengthy and that negotiations have been difficult, but the reason seems mainly to be inadequate flow of information. The PTA considers it important that there are no delays in the making of interconnection agreements, and that those companies involved do not excuse themselves by referring to technical barriers. The PTA will monitor the process in order to see whether interconnection agreements or other access agreements to Síminn's fixed network system are being completed within fair time limits and if reasonable technical requirements are being made. The PTA intends to maintain obligations on Síminn and Vodafone, Símafélagið, Nova and Hringdu and to impose an obligations on Tismi to the effect that interconnection agreements are completed, no later than three months from the request being received in order to prevent circumstances where new electronic communications companies are faced with barriers in the form of delays on agreements for interconnection. Should an agreement not be reached between the parties then either one can request that the PTA make a decision on whether an agreement should be made on interconnection or access, and on the conditions of such agreements.

165. Síminn, Vodafone, Símafélagið, Nova, Tismi and Hringdu will be obliged to record the time taken by the negotiations, progress in the negotiations and the reasons for delays should there be any. This documentation shall be available for counterparties and for the PTA should it be requested. Should access be denied then Síminn shall provide the applicant with a

documented and reasoned rejection of the request. Arguments must contain all the information necessary for an assessment of the basis for the rejection.

166. With the authority in Article 28 of the Electronic Communications Act, the PTA intends to maintain obligations on Síminn, Vodafone, Símafélagið, Nova and Hringdu, and to impose the obligation on Tismi, to accede to normal and fair requests for access to the networks and services for call termination in fixed line networks at wholesale level. If a request for interconnection is rejected or not answered within 14 days then the company should provide the applicant with a written reason supported with arguments for the rejection or delay. The completion of agreements for access shall in all instances, be completed within three months from receipt of the request.

6.5.2 Obligation of non-discrimination

167. According 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.

168. Significant market power in call termination and the lack of possible substitute service can lead to the company discriminating against parties that require the service, should the obligation for non-discrimination not be imposed. The company could, in particular, have the incentive to sell third parties call origination at a higher price than it sells it to its own departments. Such a practice would distort competition. As by far the largest part of termination takes place in Síminn networks, a distortion of competition resulting from discrimination by Síminn could create greater disruption than analogous behaviour by smaller companies. The PTA however considers that all discrimination on this market could result in disruption of competition to some degree, and could damage consumers' interests.

169. Even where companies have been assured interconnection at a price decided by the PTA with benchmarking, a company with significant market power could price its internal sales at a lower price or try to discriminate using other factors than price and thus increase a competitor's costs in order to force him from the market. This could be in the form of poor provision of information, varying quality in services and unfair conditions in agreements. Fair, moderate and justifiable conditions for access, including price are basic issues when striving to strengthen competition. In the opinion of the PTA the obligation for non-discrimination is admirably suited to tackle the problems that arise in connection with discrimination, both with respect to price and other factors. 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.

170. Despite the fact that there is an obligation to maintain parity between internal and external sales this does not exclude the possibility that the wholesale price of internal telephone calls could be lower than the sum of the prices for origination and termination, if the cost of internal calls is demonstrably lower.

171. With the authority granted by Article 30 of the Electronic Communications Act, the PTA plans to maintain obligations on Síminn, Vodafone, Símafélagið, Nova and Hringdu, and

to impose the obligation on Tismi, for non-discrimination, both with respect to price and other factors, both towards external operations and between internal operations and external operations. The dissemination of information from the relevant department should be in a comparable manner whether to third parties or to other departments within the company or to related parties. The treatment of information gained by the companies in making agreements for access should be in accordance with Article 26 of the Electronic Communications Act.

6.5.3 Obligation of transparency

172. According 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, implication on the characteristics of networks, terms and conditions for delivery and for use and 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.

173. 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 tariffs. The PTA can prescribe amendments to the reference offer and is authorised to impose rules on the content of such offers.

174. Conditions for access to a network and service are extremely important to new service providers and can have a vital impact on their possibilities to gain market share. The competitive position of such parties is clearly in danger if they have to subject themselves to conditions that discriminate. In addition to this it facilitates the entry of new parties into the market if potential service providers can acquaint themselves in advance with the conditions on offer for access to service that they must purchase. The same applies to the basis for pricing and other conditions.

175. With the authority of Article 29 of the Electronic Communications Act, the PTA imposes on all companies on the wholesale market the obligation to notify other companies in advance about all amendments to conditions. It is however authorised to notify changes to price no later than two months before the changes come into effect. Changes to interconnection areas and interconnection points shall be notified with six months' notice.

176. All electronic communications companies that make agreements on interconnection, including call termination in fixed line networks, are obliged to send the PTA a copy of such agreements without delay and no later than one week after the signing, pursuant to Paragraph 6 Article 24 of the Electronic Communications Act.

177. The PTA considers there to be no longer a need to oblige Síminn to be the only company on the market to publish a reference offer. The PTA therefore lifts the obligation on Síminn to publish its reference offer from 31 December 2017. The PTA makes the maximum termination rates public with its obligation for price control, see Section 6.5.5. The PTA thus considers it sufficient that all companies, i.e. Síminn, Vodafone, Símafélagið, Nova, Tismi and Hringdu provide the PTA and parties that request interconnection agreements, with all necessary information related to interconnection, such as on call termination rates, prices for all related services, all measurement units on which invoicing is based, charging period, possibilities for

discounts should there be any, other information that affects charging, information on location and technical characteristics of interconnection points.

178. The PTA intends to maintain the obligation on Síminn, Vodafone, Símafélagið, Nova and Hringdu, and to impose this obligation on Tismi, to notify other companies in advance, of changes to the terms and services, no later than three months before the changes are implemented. It is however authorised to notify changes in price with two months' notice. Changes to interconnection areas and interconnection points shall be notified with six months' notice. The companies should also notify the PTA of all changes to interconnection agreements, tariffs or general terms for interconnection. Changes to tariffs and general conditions would not come into force before the PTA has endorsed them. In information that is provided, the changes that have been made and the nature of these changes must be shown clearly.

6.5.4 Obligation of accounting separation

179. 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 accounting separation 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. In the PTA Decision no. 3/2012 from 14 December 2012, an obligation was imposed on Síminn and Vodafone for accounting separation.

180. The purpose of accounting separation 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 limits possibilities for the company in question to charge for costs that are not related to a specific service. As call termination rates are now decided on the basis of benchmarking and are for this reason not dependent on the costs of individual electronic communications companies in this country, the PTA sees no reason to maintain obligations on accounting separation.

181. The PTA therefore intends to withdraw the obligation of accounting separation on Síminn and Vodafone from 31 December 2017. This obligation is not imposed on other companies.

6.5.5 Obligation of price control

6.5.5.1 General

182. Pursuant to Article 32 of the Electronic Communications Act, the PTA can impose obligations on electronic communications companies for cost related tariffs and obligations for cost accounting for specific types of interconnection or access, where market analysis indicates that a lack of active competition can lead to an electronic communications company with significant market power demanding excessively high charges or to there being an abnormally small difference between wholesale and retail prices. As was stated in the discussion on competition problems, the PTA considers that companies that offer call termination in individual fixed telephony networks could have the incentive to demand higher call termination rates should their tariffs not be subject to price control.

183. The PTA considers that the conditions of the above specified provision exist in this market. The competition problem on the market is mainly related to an incentive for overpricing of telephone calls that originate in networks other than the one where termination takes place. In the opinion of the PTA this is among other things a consequence of the arrangement for payment of termination which is known as the CPP principle, as it means that parties other than their own customers pay the costs and there is little consumer price awareness. The PTA considers it undesirable that electronic communications companies be free to collect termination rates in excess of the costs in an efficiently operated electronic communications networks. Such a situation is contrary to consumer interests and limits transparency on the market.

184. The PTA considers that according to the above there is little in the current situation that could contribute to a reduction of termination rates and for this reason that it is necessary to control pricing of call termination in fixed telephony networks. Experience in this country and abroad shows that competition has not been sufficient to reduce termination rates in accordance with real costs of providing termination and almost all regulatory bodies in Europe have imposed obligations to reduce termination rates. In the opinion of the PTA the imposition of obligations for access and non-discrimination do not suffice on their own to deal with the competition problems inherent in pricing in the relevant market.

185. The PTA thus considers it necessary to maintain obligations on price control on the market and that it is necessary that all companies that offer termination in fixed telephony networks continue to be subject to price control, as there has been no evidence of incentives that would bring about normal pricing development where obligations were not in place. For this purpose the PTA has decided to maintain the measures initiated with the Administration's Decision no. 3/2012.

6.5.5.2 Recommendations from the EU Commission and from ESA on obligations with respect to termination rates

186. The EU Commission issued a Recommendation with respect to the regulatory treatment of call termination tariffs in mobile phones and fixed line networks in May 2009³⁴. The Commission considered that obligations with respect to termination rates were not sufficiently homogeneous in member states of the Union and therefore decided to issue a regulation that was to support harmonisation. ESA issued an analogous Recommendation on 13 April 2011.³⁵

187. The main principle according to the Recommendations is that National Regulatory Authorities (NRA) should prescribe charges that are based on the costs of an efficiently operated company and in this manner the charges should be the same in all companies, that is to say symmetrical rates. When analysing costs for termination it is recommended that the pure bottom-up³⁶ (BU) LRIC³⁷ model be used. Projections are made of future developments on the

³⁴ Commission Recommendation of 7.5.2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU.

³⁵ EFTA Surveillance Authority Recommendation of 13 April 2011 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EFTA States.

³⁶ One speaks of the "bottom-up" model in the case of calculations made on the basis of an engineering model of electronic communications networks in the relevant electronic communications market. The model is based on a hypothetical network system which is efficiently designed and which uses the most efficient technical solutions on offer at any given time.

³⁷ Long-Run Average 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.

basis of current costs where the assumption is the use of the most efficient technological solutions, such as next generation networks (NGN) in the central component of the network.

188. The incremental service in question in the pure BU-LRIC model is call termination at wholesale level. The additional cost in question, or "avoidable costs" for wholesale service for call termination is the difference between total costs of network operators that provide full wholesale services and the total costs of the same network operators less call termination wholesale services to third parties. In other words one only calculates the call termination costs that are avoided if the service in question were discontinued.

189. According to the Recommendation, NRAs should ensure that symmetrical termination rates based on BU-LRIC model were implemented by 31 December 2012. According to Article 12 of the ESA Recommendation and Paragraph 22 of the preamble to the Recommendation, NRAs with limited resources could consider setting prices based on an alternative approach (e.g. benchmarking) until 1 July 2014. Where it would be objectively disproportionate for those NRAs with limited resources to apply the recommended cost methodology after this date, such NRAs may continue to apply an alternative methodology up to the date for review of the Recommendation, unless BEREC provides sufficient professional and/or financial support of implementing the recommended methodology. Outcome resulting from alternative method such as benchmarking should not exceed the average of the termination rates set by NRAs implementing the pure BU-LRIC method.

190. Due to its small size compared to other European regulators in terms of human resources and limited financial resources, PTA has applied benchmarking to decide termination rates in accordance with this article instead of preparing the recommended BU-LRIC model.

191. One should however note that the ESA Recommendation does not have direct legal impact in this country and nor is such a Recommendation a binding instrument.³⁸ Despite the above, the PTA plans to take full account of the ESA Recommendation on termination rates.

6.5.5.3 PTA Decision no. 36/2012

192. On 14 December 2012 the PTA made Decision no. 36/2012 on the designation of companies with significant market power and on the imposition of obligations on the wholesale market for call termination in public telephone networks provided at a fixed location (Markets 2/2008 and 3/2008).

193. Having in mind the definition and analysis of competition on the wholesale market for call termination in individual public telephone networks provided at a fixed location, the PTA decided to designate Síminn, Vodafone, Nova, Símafélagið and Hringdu as having significant market power on the relevant market.

194. In the obligation for price control it was specified that the maximum price for call termination would be decided by benchmarking pursuant to the authority in Paragraph 4 of Article 32 of the Electronic Communications Act.

³⁸ In this respect one can refer to the ruling of the Appellate Committee for Electronic Communications and Postal Affairs no. 1/2009, dated 22 May 2009 which deals with the Síminn appeal with respect to the PTA market analysis of the wholesale market for transit of telephone calls in public telephone networks provided at a fixed location (Market10). In that case, the Recommendations from the EU Commission and ESA on the relevant market were put to the test.

195. In the Decision it was also stated that when selecting analogous competition markets the PTA should use the electronic communications market in the EEA. When choosing countries for comparison and for the calculation of call termination in fixed networks when benchmarking is used, the PTA was to apply the following main criteria:

- Reference should be made to those EEA states where the termination rates of companies with market dominance on the markets in question were subject to monitoring of tariff by the electronic communications regulatory body of the state in question, on the basis of cost analysis where the pure LRIC methodology is applied.
- Comparison of prices should be based on the conclusions on termination rates according to calculations based on the pure LRIC model which were available when the benchmarking was made in each instance.
- Comparison should be made with the price for single transit.
- The reference shall be the price per minute of a three-minute call.
- Comparison should be made using the average exchange rate in the relevant quarter.
- The resulting price should not be higher than the arithmetic mean in those countries that fulfil the above conditions during the period of reference.

196. Then it was stated that the PTA would on an annual basis during the period of validity of the Decision, repeat the benchmarking using the above specified criteria and decide maximum termination rates which would come into force from and including 1 January each year in accordance with the conclusions of the benchmarking, however in the first instance from 1 July 2013 and subsequently annually from and including 1 January 2014. The PTA would publish conclusions from the benchmarking no later than 1 November each year with a decision (for rates that were to apply from and including 1 January of the following year), subsequent to national consultation and to consultation with ESA. Normally, all countries that fulfilled the above specified criteria should be used in the benchmarking. The PTA however made the condition that there should be a minimum of five comparison countries used as a basis for deciding prices with benchmarking. This means that the above specified dates were with the reservation that at least 5 states fulfil the above specified criteria. If there were not 5 comparison countries available on 1 January 2013, the first benchmarking would be postponed by at least 6 months or until there were sufficient comparison countries.

197. With this, the practice was discontinued of deciding termination rates with reference to the Síminn cost-analysed prices (which were based on historical costs) and this was replaced with benchmarking in accordance Article 12 of the EFTA Surveillance Authority Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EFTA States from 13 April 2011.

6.5.5.4 Termination rates decided by benchmarking

198. The PTA has already decided termination rates on the basis of benchmarking in accordance with the ESA Recommendation, both on the market for call termination in individual mobile phone networks (Market 7/2008) and the market for call termination in individual public telephone networks provided at a fixed location (Market 3/2008).

199. The PTA conducted benchmarking on call termination in mobile phone networks in EEA states during the years 2012-2015. In order to decide the rates for call termination on Market 7/2008. The conclusions of the benchmarking were published in PTA Decisions no. 32/2012, no. 25/2013, no. 24/2014, no. 28/2015 and no. 14/2016.

200. Decision no. 32/2012 was appealed to the Appellate Committee for Electronic Communications and Postal Affairs on 29 November 2012. In its Ruling no. 6/2012, the Appellate Committee raised objections to the coming into force of the new call termination rates.

201. It was stated in the conclusions of the Appellate Committee that only seven of those thirty EEA states that had been examined in the benchmarking in question had decided termination rates on the basis of the methodology in question when the PTA benchmarking took place. The Appellate Committee considered it not clear that the coming into force of the new call termination tariff was necessary had been necessary on 1 July 2013 in this country in the light of on the one hand, the number of comparison countries that had decided a later date for coming into force than the PTA or that had not made a decision on the adoption of the cost analysis method in question, and on the other hand in the light of the fact that this was a burdensome decision. The objective of harmonising termination rates with the comparison countries could have been achieved with a longer postponement of the coming into force of the new termination rates.

202. For this reason the Appellate Committee considered it proper to rescind the part of the appealed Decision that related to its coming into force on 1 July 2013. The Appellate Committee assumed that a decision on the date of commencement of the call termination tariff would be taken subsequent to the Ruling. The Ruling of the Appellate Committee is further discussed in section 1.3 in the PTA Decision no. 25/2013.

203. In the light of the Ruling by the Appellate Committee, the PTA considered it appropriate to postpone benchmarking on Market 3/2008 until a majority of EEA states had decided termination rates in fixed telephony networks in accordance with the Recommendation. It had been established for some time that there would be a very significant price reduction in termination rates in fixed line networks as was the case in mobile networks which would mean that the planned decision could be considered onerous for some electronic communications companies. Electronic communications regulatory bodies have been tardier in implementing the above specified EEA Recommendation with respect to termination rates in fixed telephony networks than in mobile phone networks. This is the reason why it took longer to achieve the objective that a majority of EEA states had decided termination rates in fixed telephony networks in accordance with the Recommendation than was the case in mobile phone networks.

204. At the turn of the year 2014-2015, a total of 17 states had decided termination rates in fixed telephony networks on the basis of the pure BU-LRIC model and 2 states in addition had applied benchmarking on such states as the PTA has done. EEA states now number 31, including Iceland. In this manner all conditions were fulfilled for deciding termination rates in fixed telephony networks on the basis of benchmarking.

205. With the PTA Decision no. 19/2015, dated 30 July 2015, the Administration decided maximum rates for call termination in fixed telephony networks. Termination rates were decided on the basis of benchmarking of call termination in fixed telephony networks in EEA states, in accordance with the conditions prescribed in PTA Decision no. 36/2012. The PTA decision was that the wholesale tariff for call termination in fixed telephony networks in Iceland should be ISK 0.16/minute for the period 1 January 2016 until 31 December 2016. The Decision also prescribed that the connection charge for termination should be revoked.

206. On 28 October 2016 the PTA published a decision on maximum termination rates in fixed telephony networks which were to apply in the year 2017. The Decision stated that the wholesale rate for call termination in fixed telephony networks in Iceland should be ISK 0.14/minute for the period 01 January 2017 until 31 December 2017.

6.5.5.5 PTA conclusion on obligation of price control

207. As previously stated the PTA considers it necessary to maintain the obligation of price control of call termination in fixed telephony networks.

208. The PTA intends to maintain the obligation for price control on Síminn, Vodafone, Nova, Símafélagið and Hringdu and to furthermore impose this obligation on Tismi. Maximum termination rates shall be the same for all companies, i.e. symmetrical rates.

209. The PTA believes that the pricing obligation will lower entry barriers to the market in question as new parties need to pay lower termination rates to those electronic communications companies incumbent on the market. The PTA points out that as termination rates drop there is less likelihood that the PTA will authorise new parties to charge higher termination rates than those that the PTA has prescribed.

210. As previously stated in Section 6.5.5.2, ESA published a Recommendation on obligations with respect to termination rates on 13 April 2011. The Recommendation pronounced on various issues that the electronic communications regulatory bodies shall have in mind when elaborating obligations on monitoring of tariff, including calculations of termination rates. When analysing costs for termination it is recommended that the pure BU-LRIC model be used.

211. The PTA considers it appropriate to take into account the ESA Recommendation in question on call termination rates as the PTA considers the method recommended by ESA to be such that it supports active competition and homogenisation of regulatory action in the EEA area. The PTA considers that cost analysis based on historical costs is not a suitable method to determine the costs for a company operated in an efficient manner on the market for call termination in fixed telephony networks. Historical costs often include a significant level of inefficiency. Equipment registered in the company's books with a long history of operations can be largely obsolete or at least less efficient than equipment based on the newest technology. There is a danger that with fixed telephony services that the networks of the former monopoly holder were developed with unnecessarily large capacity given circumstances on the market today. In addition to this, all figures for costs are for past years, while the pricing that needs to be found has to apply for the future.

212. The PTA considers that because of the high cost of implementing the BU-LRIC cost model that it is not appropriate 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. 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 is 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 budget within the Authority available for outsourced counselling services for cost analysis is only a fraction of the cost of preparing such a cost model. Furthermore, the modelling cost can be expected to be several times the budget for outsourced counselling services the Authority as a whole has available on annual basis. The cost involved in applying the BU-LRIC methodology would

therefore be disproportionate considering the budget of the PTA and the size of the national market.

213. The PTA considers that it is a National Regulatory Authority covered by the exemption provision of Article 12 of the above specified ESA Recommendation on call termination rates from 13 April, 2011, as the Authority is very small in a European context. In the opinion of the PTA, the Authority, given current status, is not in a position to apply the BU-LRIC cost analysis methodology on the market in question in the coming years because of a lack of budget, staff and specialised knowledge. It is furthermore clear that given unchanged electronic communications legislation, the PTA does not have the option of using assistance from BEREC in this connection.

214. Instead of constructing a pure BU-LRIC model, the PTA will continue to apply benchmarking to termination rates in comparison countries which base the conclusions of their calculations on a pure BU-LRIC model, in accordance with the exemption provision in Article 12 of the ESA Recommendation. According to Paragraph 4 of Article 32 of the Electronic Communications Act the PTA can, when calculating costs, use as a reference the operation of analogous service that is considered efficiently run. It 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.

215. As stated here above, the PTA has already applied this methodology, and in the opinion of the PTA, it has created a predictable working methodology for deciding termination rates through benchmarking - which creates a more stable and more predictable operational environment for electronic communications companies. Benchmarking has also proven to be an economic and efficient way to achieve the objectives for termination rates that were tabled in the above specified ESA Recommendation.

216. The PTA will apply the following main criteria as a basis for calculations of termination rates when benchmarking is applied:

- Reference shall be made to those EEA states where the termination rates of companies with market dominance on the markets in question are subject to price control by the electronic communications regulatory body of the state in question, on the basis of cost analysis where the pure BU-LRIC methodology is applied.
- Comparison of prices should be based on conclusions on termination rates according to calculations based on the pure BU-LRIC model which are available on 30 April of the year when the benchmarking is made in each instance.
- The reference shall only be for single transit prices (layer 2)³⁹.
- The reference shall be the price per minute of a three-minute call.⁴⁰
- The average exchange rate in the relevant quarter shall be used.⁴¹
- A formal decision shall have been made by the relevant regulatory authority.

³⁹ This does not exclude states where a single price applies to more than one layer, provided that the price control obligation applies to single transit calls (layer 2).

⁴⁰ It is assumed that an average telephone call is 3 minutes, the calculations made using the following formula: average minute price for call origination = connection charge/3 + price per minute.

⁴¹ In this process the PTA shall apply the BEREC implementation in its regular benchmarking.

- The resulting price shall not be higher than the arithmetic mean of those countries that fulfil the above conditions.

217. The conclusion of the benchmarking shall be the basis for the PTA decision on termination rates and that rate shall apply as the maximum for Síminn, Vodafone, Nova, Símafélagið, Tismi and Hringdu.

218. On an annual basis during the period of validity of the Decision, the PTA shall repeat the benchmarking using the above specified criteria and decide maximum termination rates which will come into force from and including 1 January each year in accordance with the conclusions of the benchmarking. The PTA will publish conclusions from the benchmarking no later than 1 November each year with a decision (for rates that were to apply from and including 1 January of the following year), subsequent to national consultation and to consultation with ESA. Normally, all countries that fulfilled the above specified criteria should be used in the benchmarking.

The first benchmarking in accordance with this Decision shall be completed not later than 1 November 2017 for prices that will apply from and including 1 January 2018. With the Decision on 28 October 2016, the PTA made a decision on maximum call termination rates which will apply for the year 2017 with the authority of PTA Decision no. 36/2012.

6.5.6 Assessment of the effects of planned obligations

219. In accordance with the principle of proportionality, it is necessary to assess whether the burdensome impact of the obligations that the PTA plans to impose are proportionate in the light of the objectives. The PTA considers that the obligations are conducive to achieving the objectives of the Electronic Communications Act no. 81/2003 on active competition and efficient electronic communications. The need for each individual obligation is discussed in the relevant sections here above and reference is made to that discussion.

220. The obligations that will be maintained on Síminn are less burdensome than those imposed on the company in 2012. Síminn no longer needs to practice accounting separation and in addition to this there is no obligation to publish a reference offer. Obligations on Síminn are now the same as those imposed on other companies on the wholesale market. The work that needs to be undertaken by Síminn for implementation of the obligations is now less than it was before. In other respects the obligations on Síminn are analogous to what they have been and it is not significantly burdensome for Síminn that they are maintained.

221. The PTA plans to lift the obligation for accounting separation from Vodafone, as the company's termination rates are now decided by benchmarking which is conducted by the PTA. Accounting separation is rather burdensome and one can assume that this obligation has entailed some costs for Vodafone. In other respects the obligations on Vodafone are the same as were imposed in 2012, and their being maintained is not particularly burdensome.

222. Obligations on the companies Símafélagið, Nova, Hringdu and Tismi are not expensive to implement. Access is prescribed which is already in existence and that it should be provided without delay when requested. A further demand is for reasonable provision of information to the PTA and to potential counterparties. Such provision of information should neither be difficult to implement, nor should it entail great expense. The companies do not have to publish a reference offer, nor do they have to separate their accounts and they do not have to perform cost analysis. The obligations thus do not have a significant impact on the costs of these

companies. Obligations on price control have on the other hand an impact on their income. As was described in 6.5.5.5 the rates will be related to costs of an efficiently run company. New companies on the fixed telephony market have the opportunity to operate in an efficient manner, despite having a small customer base. They can begin with a small investment in profitable areas and have the possibility of lowering their unit prices despite small turnover. For this reason, it is not considered particularly burdensome that termination rates are reduced to what is considered normal in a well operated company. It should be mentioned that new companies that enter this market in the future cannot expect a glidepath to lower their rates as the ESA Recommendation on termination rates assumed that all termination rates in fixed line networks have been symmetrical since 31 December 2012.