

Annex A



PÓST- OG FJARSKIPTASTOFNUN

Market Analysis

Wholesale market for access and call origination in public mobile telephone networks (Market 15)

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Summary and Conclusions

This document contains the analysis of the Post and Telecom Administration (PTA) of the wholesale market for access and call origination in public mobile telephone networks, which is Market number 15 in the ESA recommendations on the relevant market from 2004, which is now no longer in force. The market analysis is the basis for decisions on whether to impose, maintain, amend or withdraw specific regulatory obligations on electronic communications undertakings that have been designated as having significant market power.

The previous analysis of this market, along with the decision on obligations, was published on 5 February 2007. In that analysis the PTA came to the conclusion that this was two service markets. On the one hand there was the market for access and call origination in GSM mobile phone networks and on the other hand in NMT mobile phone networks. The conclusion of the 2007 analysis was that Siminn had significant market power, both on the GSM and NMT markets.

On the market for access and call origination in GSM mobile phone networks, obligations were imposed on Siminn for:

- Access
- Non-discrimination
- Transparency
- Accounting separation
- Price control, which constituted "retail minus" pricing for virtual networks and resale, as a temporary measure, until the Siminn cost analysis based on historical costs became available. Historical costs should be used as a basis for pricing of access to roaming.

On the market for access and call origination in NMT mobile phone networks, obligations were imposed on Siminn for:

- Resale access
- Non-discrimination
- Transparency
- Price control, which constituted "retail minus" pricing

Subsequent to the previous market analysis of this market, 3G (UMTS) services have entered the market. It is the opinion of the PTA that such service belongs to the same market as GSM services.

Another change that has occurred is that the NMT system was discontinued from 1 September 2010. This market no longer exists, so the obligations imposed on that market automatically expired.

The PTA has now made a new analysis of this market. As this market is no longer in the ESA recommendations it is necessary to evaluate whether it still fulfils the conditions required for possible implementation of ex-ante obligations (the Three Criteria Test). The criteria that a market needs to fulfil are in the first case that there are high and non-transitory barriers to entry, in the second case that the market is not tending towards active competition and in the third case that the implementation of general rules of competition law will not suffice on their

own to redress failures of the market. The PTA proposed conclusion is that market fulfils the first criterion, which is the existence of high and non-transitory barriers to entry. The PTA on the other hand, believes that the market is tending towards active competition, which means that the second criterion is not fulfilled. For this reason there is no need to examine the third criterion, with respect to the general rules of competition law.

Because the market no longer fulfils all criteria specified in the ESA recommendation, the PTA intends to withdraw the obligations that were imposed on Siminn with the PTA decision of 5 February, 2007. The PTA considers that the obligations on the NMT market expired when operations of the NMT network were discontinued, as it was impossible to fulfil them from that point in time. Obligations on the GSM part of the market that were imposed with the PTA decision of 5 February, 2007 are still in force. The intention is to withdraw them because of the above specified conclusion on the state of the market. As other electronic communications undertakings now participate in wholesale transactions with Siminn that are at least in part based on obligations currently in force, the PTA considers it clear that an adequate glidepath is needed to withdraw the obligations. The PTA thus intends to prescribe that the obligation for access be withdrawn 12 months after the publication of the PTA decision on the basis of this market analysis, while other obligations will be withdrawn six months after the publication of the decision.

PTA will continue to closely monitor developments on this market and should circumstances change significantly then the institution will evaluate the need for a new analysis of the market.

1.0 Introduction

1.1 General

1. This document contains the analysis of the Post and Telecom Administration (PTA) of the wholesale market for access and call origination in public mobile phone networks (Market 15, as in the older numbering markets from 2004). The PTA published that analysis of this market, along with its decision on obligations on undertakings with significant market power on 5 February, 2007. Market analysis is to be repeated at reasonable intervals in order to monitor whether there have been changes to circumstances on the market. The PTA considers that the time has come to review the previous analysis.

2. This document is based on a draft that was submitted for consultation with a letter dated 30 August, 2011, where the Competition Authority, electronic communications undertakings and other stakeholders were offered to make comments on the market analysis. The following parties submitted comments: The Competition Authority, Fjarsskipti ehf. (Vodafone), IP-fjarsskipti ehf. (Tal), Nova ehf., Símafélagið ehf. and Síminn hf. The above-mentioned comments and the PTA position on the comments are covered in a special document (Annex B). The market analysis was updated in accordance with the comments that were taken into account. The market analysis along with a draft decision on obligations on the market in question will now be sent to the EFTA surveillance authority (ESA) for consultation, according to Paragraph 1 Article 7 of Act Number 69/2003 on the Post and Telecom Administration. Should ESA raise no objections to the market analysis and PTA draft decision, then the decision will be notified to the companies in question.

3. Market analyses are divided into several main parts. First of all the relevant service market and its geographical demarcation are defined. It is then evaluated whether obligations may be imposed on the relevant market (the Three Criteria Test) in accordance with the ESA recommendation. If the market meets the criteria then an analysis is made on whether competition is active or whether one or more companies on the market have significant market power. It is finally evaluated whether it is appropriate to impose, maintain, amend or withdraw obligations on undertakings on the market.

4. Markets are in continual development which means that they must be examined again, within a reasonable period of time. Markets are analysed, with respect to development in the near future, to the extent that this is possible. The period that a market analysis is intended to cover depends to a certain extent on the characteristics of the relevant market, but as a rule of thumb one could expect conclusions of an analysis to apply for 2 to 3 years.

1.2 Electronic communications legislation

5. The Electronic Communications Act number 81/2003, implements the EU directives on electronic communications.¹ EU telecommunications legislation is intended to create

¹ They constitute the following Directives: 1) The Directive of the European Parliament and of the Council number 2002/19/EC from 7 March, 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive) 2) the Directive of the European Parliament and of the Council number 2002/20/EC from 7 March, 2002 on the authorisation of electronic communications networks and services (Authorisation Directive), 3) the Directive of the European Parliament and of the Council number 2002/21/EC from 7 March, 2002 for a common regulatory framework for electronic communications networks and services (framework Directive) and 4) the Directive of the European Parliament and of the Council number 2002/22/EC from 7 March, 2002 on universal service and users rights relating to electronic communications

uniform operating conditions for electronic communications in Europe, to limit barriers and create conditions for sustainable competition for the benefit of consumers.

6. Chapter 5 of the Electronic Communications Act imposes the obligation on the PTA to define specific electronic communications markets by service type and by geographical demarcation in accordance with the main principles of competition law and with obligations according to the agreement on the European economic area (EEA agreement). The PTA is also obliged to analyse the defined markets and to assess whether active competition exists on these markets. Should the PTA come to the conclusion that there is active competition on the relevant market, that is to say that no undertaking has significant market power, then the institution is unauthorised to impose obligations on undertakings. Should the institution have previously imposed obligations on undertakings on the relevant market then it shall withdraw these obligations and shall not impose further obligations. 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 undertakings 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, on market analyses and on the decision on obligations.

7. The EU Commission has issued guidelines and recommendations for market analysis. On the one hand there are guidelines on market analysis and on evaluation of significant market power,² and on the other hand, there are recommendations on the relevant markets.³ The EFTA surveillance authority (ESA) has issued an analogous guidelines,⁴ (hereafter called "the guidelines") and recommendations⁵ (hereafter called "the recommendations"), and the PTA makes reference both to the ESA and EU guidelines and recommendations when analysing markets. Reports of the European regulatory group of national regulatory

networks and services (Universal Service Directive). The Directives of the European Parliament and of the Council number 2009/140/EC (which amends the framework Directive) and 2009/136/EC (which amends the universal service Directive and personal data protection Directive) from 25 November, 2009, have not yet been formally incorporated into legislation in this country. One can expect this to be implemented in the spring Parliament of 2012.

² 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.

³ Recommendations currently in force are: Commission Recommendation of 17 December 2007 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 (notified under document number C(2007) 5406) (2007/879/EC) and explanations; Commission Staff Working Document - Explanatory Note Accompanying document to the 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 (Second edition) {(C(2007) 5406).

⁴ 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.

⁵ Recommendations currently in force are: EFTA Surveillance Authority Recommendation of 5 November 2008 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.

authorities are also taken into consideration (ERG⁶) on obligations that may be imposed on electronic communications undertakings with significant market power for the purpose of strengthening competition,⁷ on the implementation of the Three Criteria Test⁸, on the geographical demarcation of markets⁹, on the experience of market analyses¹⁰ and on the transition from sector-specific regulation to general competition law on electronic communications markets.¹¹

8. In existing recommendations on the relevant markets, seven electronic communications markets have been predefined, that the PTA, in accordance with the electronic communications legislation currently in force and with Iceland's obligations according to the EEA agreement, is obliged to analyse. Electronic communications legislation also allows for the PTA defining these markets in accordance with ambient circumstances in Iceland. In this context, it is possible that the PTA market definition would deviate from the one allowed for in the recommendations. 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 recommendations. In the previous ESA recommendations from 2004, 18 markets were defined, including the wholesale market for access and call origination in mobile phone networks. This market is not to be found in the current recommendation which means that it has to be particularly examined in the light of circumstances pertaining in this country, as to whether it still meets the criteria for it to be susceptible to ex-ante obligations according to Chapter 7 of the Electronic Communications Act.

9. The Ministry of communications has issued the regulation on market analysis in the field of electronic communications no. 741/2009, based on the authorisation in paragraph 3 of Articles 18 and 75 of the Electronic Communications Act. The regulation applies to the processing of cases and the main criteria that should be used when defining electronic communications markets, when analysing relevant markets, when designating a undertaking or undertakings as having significant market power and for the decision on obligations according to the Electronic Communications Act number 81/2003. The regulation is based on the above specified EEA actions, recommendations and guidelines.

1.3 Implementation of market analysis by the PTA

10. As is stated in the PTA information brochure on market analysis, the implementation of market analysis can be divided into three stages:¹²

- Define the service market in question and the geographical market
- Analyse each of the defined markets, assess whether there is active competition on

⁶ ERG is the abbreviation for "European Regulatory Group of National Regulatory Authorities". Now The Body of European Regulators for Electronic Communications (BEREC) has taken over the tasks of ERG.

⁷ *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 found at the URL: http://erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf.

⁸ ERG Report on Guidance on the application of the Three Criteria Test, June 2008, ERG (08) 21.

⁹ *ERG Common Position on Geographic Aspects of Market Analysis (definition and remedies) - October 2008 ERG (08) 20 final CP Geographical Aspects 081016.*

¹⁰ *ERG Report on Experiences with Market Definition, Market Analysis and Applied Remedies ERG (05) 51.*

¹¹ *ERG Report on Transition from sector-specific regulation to competition law, ERG (09) 40.*

¹² PTA information brochure on market analysis was 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).

these markets and decide whether one or more companies have significant market power.

- Decide whether to impose, maintain, change or lift obligations on companies with significant market power.

11. For the market that is no longer in the ESA recommendation on relevant markets there is an additional phase, which is to assess whether the undertaking still meets the criteria to make it susceptible for the imposition of obligations on undertakings (the Three Criteria Test). This document contains the PTA conclusions from all appropriate phases.

12. Work on this analysis commenced with the distribution of questionnaires to parties to the market and other stakeholders by a letter dated 13 February 2009. Replies to these questionnaires are used in this analysis, but they have been processed in such a way that the responses of individual parties cannot be traced back to them. The institution has also collected information, among other things statistics, and has had informal conversations with parties to the market. Statistics, including data on the mobile market, is collected from all market parties at six monthly intervals. Then the PTA collects information on all changes to tariffs as soon as they appeared.

13. The first draft of the market analysis was presented to the Competition Authority and to stakeholders by letter dated 30 August, 2011 and they were offered to make comments. The PTA has processed the comments received and reports them in a separate document (Annex B). The market analysis was updated in accordance with the comments that were taken into account. The market analysis, along with a draft decision on obligations on the market in question, will now be sent to the EFTA surveillance authority (ESA) for consultation, according to Paragraph 1 Article 7 of Act Number 69/2003 on the Post and Telecom Administration. Should ESA raise no objections to the market analysis and PTA draft decision, then the decision will be notified to the companies in question.

1.4 General on the definition of markets

14. According to Article 16 of the Electronic Communications Act number 81/2003 as amended the PTA shall define service or goods markets and geographical markets in accordance with the main principles of competition law and with obligations according to the EEA agreement. As has been stated it is necessary for the PTA to evaluate whether the markets, as they had been defined in the recommendations, are appropriate to Icelandic circumstances. It is necessary to define both service and geographical markets before one can evaluate whether circumstances on the market are such that it is necessary to impose obligations.

1.4.1 Demarcation of goods and service markets

15. In Article 4 of the Competition Act number 44/2005 a market is defined as a sales area for goods or substitute goods and/or a sales area for service or substitute service. Substitute goods and substitute service are defined as goods or services that either fully or to a significant extent can replace others, not only on the basis of objective attributes of the goods, intended use by the purchaser and price, but also with respect to conditions for competition and/or conditions of supply and demand. Those goods that exert competitive pressure are thus called substitute goods and each market is composed of goods that have inherent substitutes. Goods that can only to a very small degree, act as substitutes for others are not on the same market.

16. Substitution is evaluated from two aspects. On the one hand the extent to which the customer feels that the product can substitute another (demand substitutability). On the other hand, the ease with which the competitor of a given company can adapt his production such that it fits the market on which the given company is operating (supply substitutability).¹³ Demand substitutability is considered to be the foundation for market definition while supply substitutability is less important and is rather related to evaluation of possible competition.

1.4.2 Demarcation of the geographical markets

17. When a service market has been defined, the next step is its geographical demarcation. The main rule is to take into account the scope of the electronic communications network and the jurisdiction covered by the relevant legislation. Geographical demarcation is also based on evaluation of substitute goods or services, both demand and supply side. The geographical market is the area where goods or services are offered on sufficiently uniform competitive criteria. When evaluating substitutability on the demand-side it is appropriate to take into account tastes and the geographical purchasing patterns of customers. On this basis it is possible to demarcate markets as local, regional, national or transnational, that is to say that they cover more than one state. The PTA however does not have authorisation to demarcate a multinational market on its own initiative. If a market is considered to cover more than one state then the European regulatory bodies cooperate on the definition along with the EU Commission and ESA as appropriate.

18. There are two highly significant factors in geographical demarcation of markets, on the one hand there is the scope and distribution of the electronic communications network and on the other hand those price. If an electronic communications network covers the whole country, then this is an indication that the demarcation should be for the country as a whole. Where the network distribution is split by region and where there is no overlapping between areas, then this is an indication that the demarcation should be regional. If the price is the same for the whole country, then this is an indication that the demarcation should be for the country as a whole. Where the price varies by region, then this is a strong indication that there is no substitutability on the supply or demand sides and that this is a case of separate geographical markets.¹⁴

1.4.3 Criteria to define other markets

19. The PTA can define other markets than those in the ESA recommendations, for example, because of special conditions here in this country. In such cases, this should be done in consultation with ESA. When other markets need to be defined, then the following conditions must be fulfilled before it is possible to impose obligations on them:

- There are barriers to entry to the market.
- The market does not have the attributes that enable active competition.
- General competition rules do not suffice to remove barriers or to strengthen competition.

¹³ See further paragraph 39 in the guidelines and Explanatory Note to the Commission recommendation, Chapter 3.1.

¹⁴ The geographical demarcation of markets is discussed in Chapter 2.2.2 in the guidelines, also in COMMISSION NOTICE on the definition of the relevant market for the purposes of Community competition law. ERG Common Position on Geographic Aspects of Market Analysis (definition and remedies) - October 2008 ERG (08) 20 final CP Geographical Aspects 081016.

2.0 Definition of service markets for access and call origination in mobile phone networks

2.1 Definition in the ESA recommendation

20. In the older ESA recommendation from 14 July 2004 the relevant market is defined in the following manner:

"Access and call origination on public mobile telephone networks"¹⁵

21. In the Explanatory Note to the EU Commission recommendation from 2003 on the relevant markets, which is analogous to the ESA recommendation from 2004, states that access and call origination in mobile phone networks were normally sold together by company that operated mobile phone network and for this reason, both of these service items were considered to belong to the same service market. Access and call origination in international roaming is not considered to be a part of this market and nor is termination of telephone calls. A distinction is made between telephone calls on the one hand and on the other hand, SMS messages and other data transfer through mobile phone networks, but a distinct market has not been defined for the latter services. Nor is there in the recommendation any further explanation of whether a distinction is made between digital and analogue mobile phone networks or between differing technological solutions in general. Nor is there any discussion on the form of access that can be covered by this market. The Commission considered there to be significant access barriers on the market, but at the same time considered that the competition that seem to be generally present on the retail market indicated that the market should not be subject to ex ante obligations.

22. When the Commission reviewed its recommendation in 2007 it came to the conclusion that this market tended towards active competition in a majority of states. For this reason, it was decided to remove it from the recommendation. ESA issued an analogous recommendation in 2008 where this market was longer considered to be among the relevant markets.

23. Despite the fact that this market is no longer part of the ESA recommendation it is necessary to re-examine the market as there are currently obligations in force on this market that were imposed by the PTA with its decision dated 5 February 2007. It has to be established whether the circumstances are currently such in this country that it is justifiable to intervene in this market and a decision has to be made on whether the obligations should remain in force unchanged or amended, or whether they should be withdrawn. As in the previous analysis of this market the PTA bases its work on the definition of the market as presented in the ESA recommendation from 2004.

2.2 The PTA definition of the relevant service markets

2.2.1 General

24. In this section, the PTA will define the market for access and call origination in mobile phone networks in accordance with the ESA recommendation from 2004. The market will be defined with the circumstances in Iceland in mind.

¹⁵ Access and call origination on public mobile telephone networks.

25. In its analysis of Market 15, which was published in its final version on 5 February 2007, the PTA defined a market for access and call origination in public mobile phone networks. This definition is based on the definition in the ESA recommendation on relevant markets 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. Discussion on the definition and demarcation of the market in the following text is thus mostly analogous to that in the previous analysis. The PTA however considers that it is necessary to investigate whether there have been changes in the circumstances on the market in this country, including changes with respect to the service offer, that could call for changes to the definition or whether new services have emerged based on new technology that fall within the scope of the market.

26. In accordance with the recommendation and conclusions of the Commission, the relevant market is a wholesale market. Four companies operate mobile phone networks on this market, i.e. Síminn hf., Fjarlskipti ehf. (Vodafone), Nova ehf. and IMC Island ehf. The three first named companies are vertically integrated companies, i.e. they operate their own mobile phone network and are also service providers on the retail market, while the sister company of IMC, Alterna, is a service provider at the retail level. This means that the relevant market also covers their internal sales, i.e. sales from their wholesale division to their retail division. The company IP-fjarlskipti ehf. (TAL) also operates on the mobile phone market and is both as a reseller of services and a virtual network party, and has made wholesale agreements with Vodafone and Siminn. Further to this the company Símafélagið ehf. has made an agreement on resale of mobile services with Vodafone and IMC, but its market share on the mobile phone market is very small, as the company's main emphasis is in fixed line electronic communications.

27. Though a clear distinction is made between wholesale and retail markets on the basis of the transactions that take place there, it is necessary to take into account the possible connection between these two markets, which could lead to competitive pressure. For this reason it is important to also examine conditions for competition at the retail level when defining the wholesale market, as demand at wholesale level has its roots in demand at retail level. The wholesale market has developed in very recent years, as two independent buyers (TAL and Símafélagið), but do not have their own wireless network, resell the services of network operators.¹⁶ The same can be said to a large extent about IMC/Alterna which only controls very limited wireless distribution system up to this point in time, and it purchases extensive roaming and/or virtual network services from Siminn. Mobile phone companies other than Siminn¹⁷ purchase access to other parties' networks to some extent, though they operate their own mobile phone networks. All four network operators have provided access to their networks.

28. From the point of view of the consumer, one can look at access to mobile phone networks as the possibility to call from a mobile phone and to receive calls, and to send and receive SMS and MMS messages and to have access to data transfer. One can thus consider it likely that consumers do not consider that there to be substitutability between access and call origination in mobile phone networks, but rather that these services are complementary to

¹⁶ Tal has both a virtual network agreement with Siminn and resale agreement with Vodafone. The majority of Tal customers are now in the company's virtual network, which is hosted at Siminn's network, but a considerable number are still in the Vodafone systems.

¹⁷ It is true that Siminn purchases roaming from Vodafone at certain locations in the rural areas, that is arterial road roaming, as Vodafone developed transmitters at specific remote locations after having made an agreement with the Electronic Communications Fund.

each other without being independent. At the wholesale level one could consider that service providers would require general access to mobile phone networks and the possibility for call origination which they can then offer together to their consumers. One could thus consider that there is correspondence between demand at retail and wholesale levels. Access and call origination is normally bundled, both at wholesale and retail levels.

29. The PTA nevertheless examined whether there was a basis for defining access to mobile phone networks at retail level as a separate market. Access to the network is normally included in the retail price. Users who have post-paid mobile phone subscriptions are invoiced for a monthly subscription fee and for the cost of each telephone call. Companies on the relevant market offer many differing packages, subscription options and discounts for selected telephone numbers ("friend" numbers). When examining the subscriptions, offers and discount options on offer, it can be seen that access and telephone calls are in all cases offered together on the retail market and that access is not sufficiently distinguished from other mobile phone services at retail level, to be able to define it as a separate service market.

30. The supply of types of access and call origination at the wholesale level can be in a variety of forms, but domestic roaming has for some time been the most common form. Tal and Símafélagið now resell services that they purchase from Vodafone. The only example of an agreement on pure virtual network access is between Tal and Siminn. Tal and Vodafone have however signed a virtual network agreement that has not yet been implemented. But there is the question of whether the roaming agreement between Siminn and IMC is in nature rather a virtual network agreement than a roaming agreement. Further investigation of this matter is not considered to be of any significance for this market analysis, but the PTA does have that agreement under examination in a separate case involving possible infringement by Siminn and IMC of the non-discrimination obligation on Market 7 for call termination.

31. In the eyes of the mobile phone user it does not matter whether it is the mobile phone network operator or the service provider that does not own a mobile phone network in whole or in part that provides the mobile phone service. Mobile phone service at retail level is thus independent of the type of access on which call origination at wholesale level is based. One can assume that users differentiate between mobile phone companies on the basis of criteria such as price, quality, additional services and discounts on mobile phones.

32. The needs of buyers (service providers) at wholesale level vary and depend mainly on whether they own their own system and the size of the system should they have one. Despite this, the PTA doesn't consider it necessary to define the market by varying access services at wholesale levels as one can assume that substitute offers exist between them. Each mobile phone network operator that offers services for call origination to service providers through indirect access can, should the appropriate circumstances exist, relatively easily switch to providing access to virtual network operators (MVNO) and vice versa.

33. There are information and content providers that request access to mobile phone networks in order to provide specific value-added services to end users. These could be for example, 900 services or services that send specific information with SMS messages. Such services provided to end users do not replace the call origination in mobile phone networks at retail level and there is no substitutability between the services at wholesale level. Access for such service providers is thus not within the scope of the market being examined here.

34. With the above in mind it must be considered that the relevant market covers both access and call origination in mobile phone networks, all forms of services for access and call

origination in mobile phone networks at wholesale level and all electronic communications companies that operate mobile phone networks and/or purchase access to mobile phone networks at wholesale level.

35. The wholesale services being examined here cover various services that mobile phone network operators can provide to other companies and/or to themselves. The most common forms of access services at wholesale level are the following:

- Call origination with indirect access - gives mobile phone companies the possibility to provide fixed line telephone call services with e.g. pre-selection or fixed pre-selection. Indirect access provides mobile phone users with the possibility to use mobile phone companies other than the one to which they subscribe. This service is limited to specific telephone calls or categories of telephone call (e.g. international calls). Mobile phone companies can offer their customers pre-selection where a number from 1000 to 1100 is dialled prior to the number to which the call is being made. Siminn and Vodafone offer their customers pre-selection services for international calls that are less expensive than the traditional service.
- Origination of telephone calls with access - provides virtual network operators (MVNO's)¹⁸ the opportunity to offer mobile form services at retail level. Virtual network access can be divided into several levels, which are defined by the level of access to an electronic communications network that is provided at wholesale level. One could thus call the highest level pure MVNO where the technical implementation would be largely similar or the same as domestic roaming, except that the virtual network party would not operate any distribution system whatsoever. Such a virtual network party could make its own agreements on roaming and interconnection. The second level of virtual network would be where the service provider operates its own service system which gives him increased possibilities to more effectively identify his services as being distinct from the "mother provider", such as having its own charging system and even its own voicemail boxes, SMS/MMS and various special services. Such a service party does not make agreements on roaming but can in some instances make agreements on interconnection. On-net termination of telephone calls, that become on-net calls with call origination, is included in access services that a virtual network company purchases from the operator of a mobile phone network.
- Resale with access - provides the service provider with the possibility of reselling mobile phone services. He purchases either minutes or traffic capacity from the mobile phone network operator at a discount, which gives him the possibility of generating income. Such a service party has limited possibilities to offer other prices than those charged by the mobile phone network operator, as the price is based on the tariff of the latter company. In the case of pure resale under an independent trademark, the service provider does not have any independent mobile phone network infrastructure, but sells services under its own independent trademark and purchasers almost all support service at wholesale level. On-net termination of telephone calls, that become on-net calls with call origination, is included in access services that a virtual network company purchases from the operator of a mobile phone network.
- National roaming - is the type of mobile phone service best known in this country in mobile phone networks. This is a case where a mobile phone company A defines in

¹⁸ Mobile Virtual Network Operators.

mobile switching centre (MSC) that the users of mobile phone company B in the same country shall get access to specific and specially marked transmitters in the mobile phone system operated by A. Access is thus permitted for IMSI number sequences of mobile phone system B, but only in specific areas. When users of mobile phone system B travel within these areas of mobile phone system A then they are allowed access to the area and information on their connections into the area sent to a mobile phone company B. When these conditions are fulfilled then all telephone traffic, whether to or from a B user, within A's distribution system is directed to/from B's switching centre through specific roaming interconnection routes between A and B, on which the settlement between the companies is also based. Access to domestic roaming includes both origination and termination of telephone calls for a customer of the mobile phone telephone company B in the example shown above.

- Internal sales within the company – sale of access and origination of telephone calls from wholesale to retail within the same company. The retail department is generally a parallel to resale in the examples listed above.

2.2.2 Access and origination of telephone calls in a fixed network

36. It must be considered that there is limited substitutability in demand between the use of mobile phones and fixed line telephones. The main reasons for this are varying attributes and differences in pricing. Even though fixed line and mobile phone networks offer technically comparable services then the fixed line system does not offer the mobility offered by mobile phone systems. In addition to this fixed line telephone calls are considerably less expensive than calls from mobile phones. These two factors indicate that mobile phone and fixed line telephone services do not belong to the same service market.

37. On the other hand it is worthwhile examining whether increases in the price of telephone calls from mobile phones can lead to users switching to fixed line telephones. The price of a telephone call from one fixed line telephone to another is considerably lower than the price of a telephone call from one mobile phone to another. There is a small difference in price between a call from a fixed line telephone to a mobile phone and mobile phone to fixed line. The price for a 1 min call from mobile phone to mobile phone ranges from being a little more than 4 times higher than a one-minute call from fixed line phone to fixed line phone, which is also an indication that these are two separate markets.

38. There is also little possibility of substitutability on the supply-side at wholesale level as operators of fixed line networks cannot change to offering mobile phone services without incurring considerable costs and in addition to this it would be a time-consuming operation. There are thus considerable access barriers inherent in start-up costs related to development of a mobile phone network.

39. It is the opinion of the PTA that the price difference between the use of mobile phones and fixed line phones and the limited possibilities that operators of fixed line networks have to change to offering mobile phone services, indicates that access and origination of telephone calls in fixed line networks are not part of the market being examined here and this is in line with the conclusion reached by both the EU and ESA.

2.2.3 Telephone calls using IP technology (VoIP)

40. The use of VoIP services on the Internet has increased significantly, particularly in connection with international calls. In addition to this, Internet connected computers, laptops,

PDAs and even mobile phones which connect to the Internet can run applications that connect the device with a VoIP exchange, which allocates them a telephone number. There are also special Internet telephones, that is to say devices that connect to the Internet with a network cable or through Wi-Fi and that either have a built-in handset or to which one can connect a traditional fixed line telephone. These Internet telephones connected to a VoIP telephone exchange, which allocates a telephone number to them.

Telephone calls using IP technology are implemented in various ways, for example:

- From computer to computer.
- From computer to a telephone number (VoIP number, fixed line or mobile phone).
- From a telephone number (VoIP number, fixed line or mobile phone) to a computer.
- From telephone number to telephone number.

41. 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, 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 one pays for the telephone, according to a special tariff that is based on a fixed price per minute.

42. It would be normal to consider whether VoIP telephone calls are part of the relevant market and whether they could be a substitute for telephone calls from mobile phones should prices for such calls increase. The main argument against this is the mobility offered by mobile phones, particularly when making comparison with calls from a computer. Using computers is also less convenient and requires handling software. When making a call with an Internet telephone then one has to establish a network connection to be able to make a call, which also requires actions on the part of the consumer. Mobile phones which can be connected to Wi-Fi are not yet in general distribution and they also require actions by the consumer for setting up and operating software. It is possible to use 3G phones to connect to the Internet and to make IP calls but today fewer than 50% of users in Iceland have 3G SIM cards. Most types of 3G telephones require some kind of handling of software and set up in order to be able to use IP telephone services.

43. Given the current situation the PTA does not consider there to be substitutability between calls using VoIP and calls from mobile phones, neither at retail nor at wholesale level. The main reason for this is that VoIP has not yet achieved significant distribution and is still under development. The use of VoIP requires the consumer to perform operations with software, which means that there is a considerable difference between that service and traditional telephone service which is easier to use. In this country VoIP services are first and foremost used for international calls. There are thus still many barriers to there being a realistic substitute available.

44. With the above in mind it is the opinion of the PTA that the time has not yet come to view VoIP telephone calls as part of the relevant market. The PTA will nevertheless closely monitor developments in this area and whether this service has a competitive impact on general mobile phone services.

2.2.4 Differentiation between companies and individuals

45. It is normal to consider whether individuals/homes and companies are on the same

market for mobile phone services. Mobile phone companies approach these two groups with differing offers (e.g. with different subscription offers) and with different prices. Competition conditions differ between these two groups. There is however the possibility of substitutability on the supply-side, which indicates that this is in fact one market. Mobile phone companies that have directed their business at companies can easily start to direct their business at homes and vice versa. One could also point out that in most cases the same products and services are on offer for companies as are on offer for individuals and vice versa. There is no distinction made between individuals and companies when it comes to access to a mobile phone network at wholesale level.

46. With the above in mind the PTA has come to the conclusion that both services intended for individuals/homes and for companies are on the relevant market.

2.2.5 SIM cards and subscriptions

47. The PTA considers that mobile phone services, whether prepaid or post-paid are within the scope of the same service market. Substitutability between these two seems to be fairly easy, both on the supply and demand sides at retail level, particularly when changing from prepaid cards to subscription. Users who are subscribers can on the other hand, be bound by agreements for a specific period which involves costs if they wished to cancel the subscription before the term of the agreement has expired.

2.2.6 Short Message Service (SMS)

48. The European Commission and ESA have made a distinction between telephone calls and other data transfer services. In ESA recommendation on relevant markets there is no specific market defined for SMS or other data transfer services. This is the current situation with respect to the retail and wholesale levels. It is thus not entirely clear whether SMS should be considered to belong to the market for access and origination of telephone calls in public mobile phone networks.

49. The PTA considers that in some instances SMS may be a substitute for a telephone call. This particularly applies to shorter telephone calls that do not need to take place at specific point in time. Against this there is the possibility that a message could be delayed, that the number of characters in a message is limited and that there are indications that the market considers SMS to be rather an addition than a substitute for telephone calls. Certain groups of users could consider SMS to be a substitute for telephone calls. This group is however a minority in the opinion of the PTA and most people see SMS as an additional service. On the other hand there is the fact that SMS service is always sold with other mobile phone services and never separately. In the light of this it is normal to consider that SMS should be considered within the scope of the relevant market for access and origination of telephone calls in mobile phone networks.

50. In the light of the fact that access to GSM/UMTS mobile phone networks through subscription or prepaid cards and voice and SMS services are invariably sold together in a package to users, it is the opinion of the PTA that the relevant market also includes access and origination for SMS. Fees for SMS are collected with the same invoice as for subscription and telephone calls. The same applies to the wholesale level. Competition conditions are the same, these services are all sold together and it is not possible to buy SMS service without buying access and origination of telephone calls.

2.2.7 Other data transfer services

51. In addition to voice and SMS it is possible to use access to a mobile phone network to use other data transfer services based on a variety of different technical solutions such as GPRS, EDGE or UMTS. The PTA has not particularly investigated whether there is any substitutability for end users between telephone calls and SMS on the one hand and other data transfer services on the other. The PTA doubts that this is the case and considers that users regard this service rather as an addition than as substitute service for telephone calls.

52. The main innovation in data transfer in mobile phones since the last analysis was made is the introduction of UMTS service. Statistics gathered by the PTA show that UMTS cards in use are about 43% of all mobile phone cards in use in mid-2011. The total amount of data downloaded through mobile phone networks has grown significantly, more than double between 2009 and 2010, and this development continued for the first half of 2011.¹⁹

53. Access to a GSM/UMTS mobile phone network with subscription or prepaid cards, telephone calls, SMS and other data transfer services through mobile phones, is normally sold in one package to mobile phone users. In most cases data transfer services are activated by the user receiving settings in his mobile phone from the mobile phone company as settings vary depending on the type of mobile phone. Users use mobile phones for various purposes, e.g. for making telephone calls, sending SMS or connecting to the Internet. Rather than using many service providers, users prefer to buy a package or "bundle" of services from one mobile phone company, which contains all the services required by the user. In these instances, economy of scope is advantageous for mobile phone companies and users benefit through lower transfer costs as they do not need continuously to switch between providers. In the opinion of the PTA, mobile phone users today expect that access to a GSM/UMTS mobile phone network will also give them access to all mobile phone services, i.e. voice, SMS and other data transfer services. Charges are made for all of these services on the same invoice.

54. In the opinion of the PTA, the relevant market at wholesale level also includes data transfer services. Competition conditions are the same, and these services are in most instances sold together. In this connection one may point out that in agreements on national roaming there are provisions for access to data transfer services.

55. Data transfer services through mobile phone networks is however not always sold as part of standard mobile phone subscriptions. It is possible to buy a special subscription that only covers data transfer through a mobile phone network, and in those instances, the user's client side equipment is a network stick and not a mobile phone. Such subscriptions were 10% of all subscriptions in mobile phone networks by the middle of 2011. The PTA considers this service not to be a substitution for traditional mobile phone services, except to a very slight degree (see the PTA discussion on VoIP). Nor is the service part of the package that is normally sold with mobile phone subscription. This service is intended to compete with xDSL and to service those areas that do not have high speed connections. The PTA considers it therefore appropriate to deal separately with that part of data transfer traffic in mobile phone networks that are sold particularly through data transfer subscription, and but does not go through a traditional telephone handset.

56. In the light of the above the PTA considers it appropriate to conclude that data transfer services through mobile phone networks, with the exception of special data transfer

¹⁹ Gathering of statistics by the PTA.

subscriptions, are included in the relevant market for access and origination of telephone calls in mobile phone networks.

2.2.8 International roaming

57. International roaming at retail level involves the possibility of using mobile phones, among other things to make and receive telephone calls and to receive SMS and data transfer when the party in question is abroad, that is to say when he is not in the country in which he has a mobile phone subscription. International roaming at wholesale level is conducted in such a way that mobile phone companies in each country make reciprocal agreements to provide each other's users access to the distribution systems. For this purpose, technical conditions are put in place for data transfer between the companies that makes it possible for their exchanges to exchange information on the entry of each other's customers into the distribution system, and to provide them with the agreed and reciprocal services. Settlement for this use is made through special companies that receive and process information on usage from the mobile phone companies.

58. At the retail level, access to international roaming is normally sold with a subscription to voice services. There is demand for international roaming at wholesale level among foreign mobile phone network operators. Substitution on the demand-side is on the other hand minimal as this is a case of transactions that take place abroad, where the possibility of influencing these transactions is limited. The fact that the agreements on international roaming are only made between network operators, and not with virtual network companies (MVNO) nor resale parties, limits substitutability at wholesale level both on the supply and demand sides. Nor can access to fixed line networks replace international roaming as such access can among other things, not ensure the mobility offered by mobile phone networks. In the light of the above, and in accordance with the ESA recommendation, it is the PTA conclusion that international roaming is a separate market at wholesale level, and not a part of the market for access and origination of telephone calls in mobile phone networks being examined here.

2.2.9 Third generation mobile phone services

59. Since the last market analysis was made, 3G services have been introduced in this country. Siminn and Nova developed their own 3G network and Vodafone and Nova have made an agreement on reciprocal use of each other's network. This means that Nova customers have access to 2G services outside the Nova service area while Vodafone customers can use the Nova 3G network. The 3G networks that have been built here use what is called UMTS technology.

60. UMTS technology has introduced a new system and new services in the same way that GSM did when it was introduced to the market and replaced NMT. New handsets can connect both to GSM and UMTS networks and customers are generally not aware of which network and technology they are using, except in the case of high-speed data transfer. From the point of view of the customer, new service possibilities have been added, but the change is not absolute in the same manner as the change from NMT to GSM.

61. The retail price of telephone calls, subscription terms, conditions and marketing of GSM and UMTS services do not distinguish between these systems or technologies. Customers with UMTS subscription and UMTS handsets use the GSM network in those areas not reached by UMTS. Telephone calls between customers where one is on a UMTS network and the other on GSM are implemented without the customer being aware that they are and

distinct networks.

62. There is no difference to access at wholesale level to telephone calls in GSM and UMTS networks, neither in terms nor in prices.

63. The PTA considers that 3G networks and services provided and such networks are within the scope of the market under consideration here. The provision of services on UMTS networks is so integrated with older GSM services that no distinction can be made between them.

2.2.10 Fourth generation mobile phone services

64. Recently a new technology called Long Term Evolution (LTE), known as 4G technology, has been introduced. The main difference between 4G and previous generations of mobile phone systems lies in greatly increased data capacity. It will be some time before 4G systems will be in general use as there is a lack of handsets and computers that support the technology.

65. Frequency ranges have not been allocated and development has not yet commenced in this country. Nevertheless, mobile phone network operators have commenced preparation for the introduction of 4G technology. Nova has had a six month trial licence since 1 August 2011 and has recently conducted tests. Siminn received a trial licence on 15 December 2011 and Vodafone has also applied for a trial licence.

2.2.11 NMT 450

66. NMT 450 was the only analogue mobile phone network in Iceland and was operated by Siminn from 1986. NMT reached nearly all inhabitants of the country and was accessible in the highlands and in coastal waters around the country. The NMT 450 network was closed on 1 September 2010. In a previous PTA analysis from 2007, NMT services were considered to be on a separate service market from GSM services. This market no longer exists as the service is no longer on offer and will therefore not be analysed here.

2.3 Conclusion regarding definition of service market

67. It is the opinion of the PTA that the relevant service market is in accordance with the ESA recommendation on relevant markets from 2004 and with the conclusions of the EU Commission in the Explanatory Note to its recommendations from 2003. Sufficient substitutability for access and origination of telephone calls in mobile phone networks can neither be found in demand nor in supply on the retail or wholesale markets for it to influence the conclusion. Nor does there appear to be at retail level any other realistic options for users that could exert a controlling influence on pricing of access and origination of telephone calls in mobile phone networks.

68. The relevant service market for access and origination of telephone calls in public GSM/UMTS mobile phone networks at wholesale level is composed of:

- All services for access and origination of telephone calls in GSM/UMTS mobile phone networks, that is provided or that can be provided.
- Access to GSM/UMTS with prepaid cards and monthly subscriptions.
- Access for individuals/homes and companies.
- Access to SMS services.

- Access to other data transfer services with the exception of dedicated data transfer subscriptions.

69. In the opinion of the PTA the following is not within the scope of the service market:

- Access and origination of telephone calls in a fixed network.
- Telephone calls using IP technology (VoIP).
- Termination of telephone calls in mobile phone networks.
- Termination of SMS in GSM mobile phone networks.
- International roaming.
- Dedicated data transfer subscriptions in mobile phone networks.

3.0 Definition of geographical market

70. A geographical market covers a geographical area where stakeholder companies participate in supply and demand of the relevant goods or services where conditions for competition are the same or sufficiently uniform and, where it is possible to demarcate the geographical area from neighbouring area where conditions for competition are significantly different. When evaluating substitutability on the demand-side it is appropriate to take into account tastes and the geographical purchasing patterns of customers. 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.²⁰

71. Mobile phone networks that are used for access and origination of telephone calls are geographically limited to Iceland. Iceland is the jurisdiction governed by the Electronic Communications Act number 81/2003. General operating licences for electronic communications companies cover the whole country, as do frequency range licences.²¹ Today the Siminn mobile phone network covers the whole country, or rather it can reach 98% of the population, and Vodafone can also provide mobile phone services to about 98% of the population, mostly through its own networks and through sharing of the Nova 3G transmitters and in addition to this through a roaming agreement with Siminn for "ring-road" roaming. The Nova mobile phone network covers the capital city area and the South West region of the country in addition to most built-up areas in the country. Nova also has agreements with both Siminn and Vodafone for access to their GSM services. The IMC mobile phone network is smaller than that of the others and today the company has radio transmitters at the following locations: Akureyri, Egilsstaðir, Eskifjörður, Neskaupsstaður, Reyðarförður, Sauðárkrókur, Húsavík, Höfn and Ísafjörður. IMC made an international roaming agreement with Vodafone a few years ago that provides IMC users with a possibility to roam abroad. At the end of November 2009 IMC made an agreement on domestic roaming²² that provides access to the Siminn mobile phone network across the whole country. On February 14 2012, IMC was granted a renewal of its frequency licence for an extended period of time and has described its ideas on extending its mobile phone network in this country.

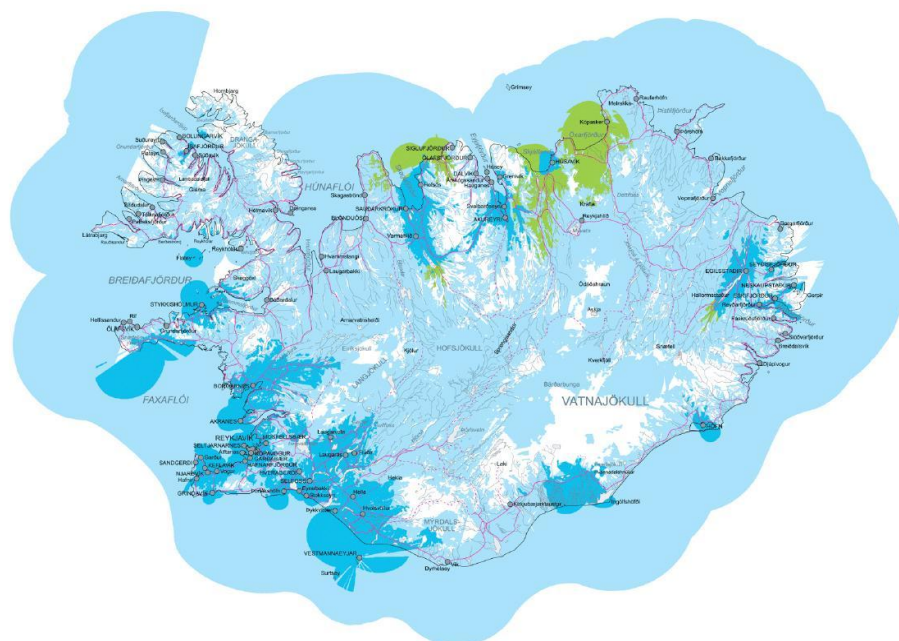
72. The following illustrations show the distribution of all mobile phone networks in the country with the exception of the network of IMC, as the PTA does not have a graphic presentation of the coverage of that network.

²⁰ See Chapter 2.2.2 in the guidelines.

²¹ The IMC frequency range licence, which was to expire in June 2010 and which was extended on a temporary basis to 14 February, 2012, is however limited to a specified geographical area. On February 14 2012, IMC was granted frequency range licence which covers the whole country except Southwest- and South Iceland.

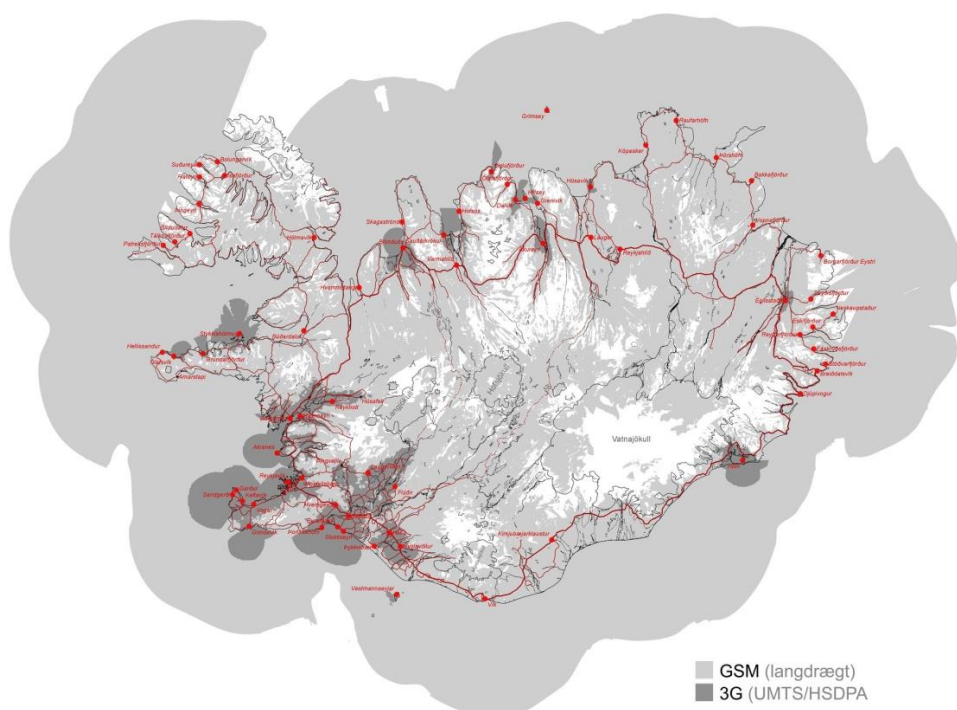
²² The agreement has rather the characteristics of a virtual network agreement than of a roaming agreement.

Figure 3.1 Coverage of Síminn mobile phone network
GSM light blue, 3G 2100 dark blue, 3G 900 green



Source: Síminn

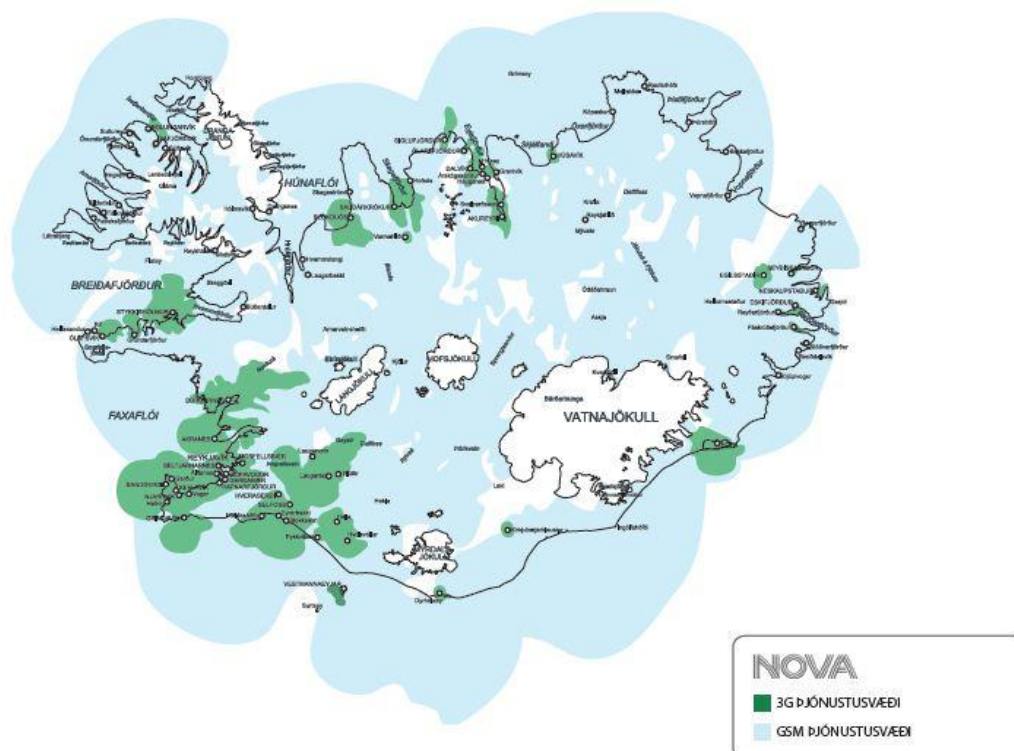
Figure 3.2 Coverage of Vodafone mobile phone network



Source: Vodafone

Figure 3.3 Coverage of Nova mobile phone network

3G area Nova own network in green and access to Vodafone and Siminn 2G networks in blue



Source: Nova.

73. One must consider that conditions for competition in access to mobile phone networks and origination of telephone calls in mobile phone networks are basically the same throughout the whole country. The service is more or less homogenous throughout the country, with respect to voice transfer, but there can be some differences in data transfer by region in the country.

74. Prices do not vary according to location in the country, neither in wholesale nor retail. According to the Siminn roaming tariff the difference in charges depends on the number of transmitters that the counterparty has access to and not on the region.²³

75. The PTA considers there to be no indications that the country is divided into varying markets for access and origination of telephone calls in mobile phone networks and thus does not see the necessity to make a detailed study of that aspect.²⁴

76. With the above in mind it is the assessment of the PTA that there is no need to demarcate the relevant market more narrowly than is allowed for in the guidelines. In the light of this, the PTA considers that the geographical market for access and origination of telephone calls in individual mobile phone networks is the whole country.

²³ See the reference offer on domestic roaming, Appendix 1. http://www.siminn.is/servlet/file/Vidmidunartilbod-um-innanlandsreiiki-utgi-08082008.pdf?ITEM_ENT_ID=75782&COLLSPEC_ENT_ID=8&version_id=1

²⁴ According to ERG Common Position on Geographic Aspects of Market Analysis (definition and remedies) – from October 2008 there is only a need for detailed study of geographical markets should a preliminary investigation indicate that the country could be divided into varying market regions.

4.0 Evaluation of whether obligations may be imposed on the relevant market (the Three Criteria Test)

4.1 General

77. According to Articles 16 and 17 of the Electronic Communications Act the definition and analysis of markets shall be made in accordance to obligations according to the EEA agreement. In the regulation on market analysis in the field of electronic communications number 741/2009, the methodology is introduced that is described in the ESA recommendation on the relevant markets and in the ESA guidelines for market analysis. In the regulation one can find a listing of the markets specified by ESA in said recommendation and in Article 4 of the regulation there is discussion on the criteria that markets need to fulfil in order to be susceptible to obligations according to Chapter VII of the Electronic Communications Act.

78. The market for access and origination of telephone calls in mobile phone networks has been removed from the list in the ESA recommendation on relevant markets for those markets that are specified in advance as lacking competition. Despite the fact that the market is no longer in the ESA recommendation, this does not automatically mean that possibilities for administrative intervention do not exist in Iceland. The market needs to be re-examined as the PTA has already imposed obligations on undertakings on that market, and it has to be decided whether they should continue to apply, in their current form or amend it, or whether they should be withdrawn, see Paragraph 4 of Article 4 of regulation number 741/2009. Circumstances may be such in this country that the market fulfils the requirements for susceptibility to obligations, though in general terms this may not have been considered to apply in EEA states when the recommendation was reviewed. In items 21 and 22 of the preamble to the ESA recommendation on relevant markets from 2008 there is discussion on instances where the regulatory institutions may have reason to deviate from the recommendation. There it is stated among other things, that if a market that was in the recommendation from 2004 is not in the new recommendation, the electronic communications regulatory institutions can examine whether it still fulfils criteria for ex-ante obligations given the circumstances of the country in question.

79. This means that if the PTS considers that circumstances are such in this country that the position on some of those markets that have been removed from the recommendations are different from the norm in the EEA area, such that barriers to access are still high, competition not foreseeable in the near future and general competition rules do not suffice to resolve market problems, then the PTA can request endorsement from ESA to examine the relevant market with a view to making a decision on obligations. The PTA can submit in one instance to the ESA an evaluation of whether the market fulfils the three criteria,²⁵ analysis of the market and description of planned obligations.

80. In evaluating whether the market still fulfils the criteria to be susceptible to ex-ante obligations on undertakings on the market,²⁶ the same methodology shall be applied as was applied when the relevant market was included in the recommendation. The three criteria that

²⁵ The Three Criteria Test.

²⁶ See Articles 6, 7 and 15 of the Framework Directive, items 6 and 22 of the preamble to the ESA recommendation on the relevant markets from 2008, Chapters 2.2 and 2.3 in the Explanatory Note to the recommendation of the EU on the relevant market from 2007 and Article 4 of the Regulation on market analysis in the field of electronic communications number 741/2009.

the relevant market needs to fulfil are the following:²⁷

- 1) That there exist high and non-transitory barriers to entry, whether they result from organisational, legal or administrative causes. It should be taken into consideration whether it is possible to surmount such barriers during the period of reference, taking into account the flexibility of electronic communications markets.
 - a. Entry barriers related to organisation and structure of the market can for example be related to the scope of an electronic communications network, unrecoverable costs and control of facilities that are difficult to establish.
 - b. Legal and administrative barriers can for example be related to the allocation of frequency ranges.
- 2) That active competition cannot be foreseen during the reference period. In connection with this one must, among other things examine the competition conditions that pertain within the access barriers.
- 3) That the application of existing competition law would not on its own suffice to provide remedies where the market has failed. The following criteria could indicate the above:
 - a. If major action is required to redress a failure by the market.
 - b. If intervention is required relatively often and without delay.
 - c. If special action is required to create legal predictability.

81. The following is an examination by the PTA on whether these conditions apply to the market for access and origination of telephone calls in mobile phone networks in the light of the circumstances in this country. In this examination, the PTA has among other things, made reference to the ERG report on the implementation of the Three Criteria Test.²⁸

4.2 On the implementation of the Three Criteria Test

82. In general, one may consider that when evaluating whether markets that were in the previous ESA recommendation from 2004, but that are not in the new recommendation from 2008, still fulfil the criteria for the imposition of ex-ante obligations, then the burden of proof is less stringent than on markets that have never been a part of the recommendation, as localised circumstances can still be similar to those that pertained on the coming into force of the recommendation in 2004. The burden of proof that the market fulfils the three criteria is at least no more onerous than the burden of proof in analysing significant market power.²⁹

83. In addition to this it applies that it is a basic principle that regulatory institutions need

²⁷ ERG has issued a document where these conditions are discussed in more detail; ERG Report on Guidance on the Application of the Three Criteria Test - ERG (08) 21 ERG Report on 3 criteria test final 080604.

²⁸ ERG Report on Guidance on the application of the Three Criteria Test, June 2008, ERG (08) 21.

²⁹ ERG Report on Guidance on the application of the Three Criteria Test, June 2008, ERG (08) 21 – pages 5 and 17.

to show why the items in the Explanatory Note³⁰ to the Commission recommendation from 2007, that provided arguments for the deletion of Market 15, do not apply in the localised circumstances of the country in question, such that circumstances on the market are more similar to those that pertained in 2003.³¹

84. In the following Chapters the conditions described in Chapter 4.1 will be examined and there will be discussion on how the above specified ESA recommendation applies to Icelandic circumstances, taking into consideration market circumstances in this country as they are in the relevant market. Where applicable the main aspects of the arguments supporting the removal of the market for access and origination of telephone calls in mobile phone networks from the recommendations of the EU and ESA from 2007 and 2008 will be examined. The point that carried most weight in the decision of the EU and subsequently of ESA to remove this market from the recommendation was that in a majority of member states active competition had been identified on this market. In the Explanatory Note to the recommendation it is explained that the EU Commission considers that in general the first criterion, regarding high and non-transitory barriers to entry does exist. Then there is discussion on criterion number two, that is that active competition is not foreseeable in the near future. On this issue the Commission comes to the conclusion that the market does not fulfil the conditions in question and that for this reason it should be removed from the list in the recommendation. The third criterion regarding general rules of competition is thus not particularly examined in the EU Explanatory Note.

4.3 Criterion 1: High and non-transitory barriers to entry

4.3.1 General comments on barriers to entry

85. The first criterion that needs to be fulfilled for there to be reason to intervene in a market with ex-ante obligations according to the Electronic Communications Act is that there are high and non-transitory barriers to entry to the relevant market.

86. Here in this country there are no significant barriers to entry for new electronic communications companies. No special licence needs to be granted for the provision of electronic communications services and there are sufficient frequency ranges to allocate new companies. They are however not on a level playing field with incumbent companies in that it is not possible to be allocated 900 MHz frequencies while existing licences are in force. This means that the development of new networks will be more expensive than otherwise as the 1800 and 2000 MHz systems have a shorter range, and require more transmitters. Up to this point in time there is no evidence of significant problems in receiving authorisation from the authorities and from property owners to locate transmitters, but there are certainly some ongoing discussions on limitations in this respect. On the whole one cannot consider that legal barriers are currently significant.

87. The entry barriers that PTA considers to be most significant on the relevant market and that need special examination are mainly related to the circumstances of a oligopoly where there are two large parties as incumbents (Siminn and Vodafone), and a third rather large party (Nova). In general it must be considered more difficult for new companies to find

³⁰ Explanatory Note accompanying the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation, SEC (2007) 1483 final. http://ec.europa.eu/information_society/policy/ecomm/doc/library/proposals/exp_note_markets_en.pdf.

³¹ ERG Report on Guidance on the application of the Three Criteria Test, June 2008, ERG (08) 21 - page 18.

their feet in competition with a small number of large parties than in competition with many small parties. The issues that the PTA has examined in this connection are control of facilities that are difficult to replicate, unrecoverable costs, economies of scale and scope, access to capital, development of sales and distribution systems, technical superiority, breadth of supply and vertical integration.

4.3.2 Control of facilities that are difficult to replicate

88. If a company has control of facilities that are expensive to replicate, then this can represent a significant barrier for a potential competitor. This aspect must be examined in connection with the discussion on unrecoverable costs

89. The sparsely populated areas of Iceland make it very expensive to develop a mobile phone network that covers the whole country. Users demand that it be possible to get a connection almost anywhere and it is probably almost impossible to achieve any degree of success on the mobile phone market without being able to offer a large geographical service area. It is therefore necessary to develop or to gain access to a network that covers the whole country. In order to be able to be a serious competitor on this market the companies that have been longest on the market, i.e. Siminn and Vodafone, have developed networks with very wide distribution. Siminn commenced the development of a mobile phone network more than two decades ago and Vodafone, and its predecessor, has been developing its network for more than 10 years. These networks now reach almost all populated areas and a considerable part of the country as a whole, in addition to the coastal waters around the country. Nova, which has been on the market for four years, has only developed a 3G network in the capital city area and in a number of urban areas in the country and its network has limited geographical distribution. The Nova frequencies licence does not allow for the development of a network covering the whole country. Nova has, however, made an agreement with Vodafone on access to the Vodafone 2G network. IMC has operated a geographically limited mobile phone network, which reaches a number of towns in the north and east of the country. The company's Icelandic customers have been very few during the 10 years that the company has operated in this country. The sister company of IMC, Alterna, started selling general mobile phone services in April 2010, but has not been prominent on the market during the past months and has a very low market share, i.e. less than 1%.

90. Siminn is the only mobile phone company that has developed a 3G network covering the whole country. Siminn also controls a long-range 3G network, which can provide services to customers in the seas around Iceland and also in many rural areas. In addition to this, Siminn has developed a broadband network in rural areas in cooperation with the Telecommunications Fund, which is mostly based on 3G technology. The Siminn long-range network has, among other things, replaced the Siminn NMT network, which was discontinued in September 2010, and provides the company with a competitive advantage as it can offer high-speed data transfer along with voice services over a much wider area than its competitors.

91. In the light of experience it must be considered almost impossible for new companies to develop a mobile phone network covering the whole country in a few years. Experience has shown that such development takes many years and there are also limits to the level of investment that the market can bear for mobile phone networks in rural areas. It is not likely that new companies can perform well on the market if they can only offer services in a limited geographical area. If accesses to the networks that have already been developed are not on offer, then the entry of more companies into the market will be difficult. The PTA considers it

therefore manifest that control of facilities creates a critical entry barrier in the relevant service market in this country.

4.3.3 Sunken cost

92. When the company enters a new market it needs to perform certain preparatory work and to invest in specific start-up costs. If entry to a market fails it can sometimes be possible to recover such costs, for example with the sale of basic investments and equipment. Unrecoverable costs are those costs that the new entrant has to bear as a loss should he not be able to establish himself on the market. Unrecoverable costs are a barrier to entry, because the incumbent companies on the market do not have to bear them. Their costs in most instances have already been paid.

93. Costs, for example for marketing, are generally highest at the beginning of operations. If a new party is to attract a significant share of customers from incumbent companies, it will presumably need to invest heavily in marketing. On the mobile phone market this can among other things be implemented by subsidising handsets. Such costs can basically be considered unrecoverable.

94. Unrecoverable costs can consist of investments in electronic communications equipment and businesses costs related to marketing and then particularly with young companies that are trying to gain a foothold on the market. One can assume that unrecoverable costs are likely to be high in Iceland for geographical reasons, and because of the sparse population. Because of their size and long history of operations, one has to consider that Siminn in particular and Vodafone to a certain extent are in a better position than younger and smaller companies to incur unrecoverable (sunk) costs.

95. It is the opinion of the PTA that there are very high unrecoverable costs incurred in developing a mobile phone network in Iceland and that this is a significant barrier to entry.

4.3.4 Economies of scale and scope

96. Economy of scale exists in the operations of companies when increased production results in lower total costs per unit. This is characteristic for technical companies which have relatively high fixed costs and low variable costs. Economy of scale can work both as an entry barrier for new parties and as an advantage over other competitors. Network operators already on the market endeavour to operate their own networks with maximum usage. New network operators need time to build their operations, to gain customers and traffic, and can thus not expect to enjoy the same economy of scale as those that have been operating networks for many years.

97. The operations of both Siminn and Vodafone enjoy economy of scale. The costs of both companies for running a GSM mobile phone network are largely fixed costs that are inherent in the development of an electronic communications network and equipment. The size of Siminn and Vodafone on the electronic communications market makes them more likely to enjoy economy of scale than other companies. To some extent this also applies to Nova. New companies entering the market would need considerable investments in networks, particularly if access to third party networks was not on offer. When commencing operations, companies have relatively few users and do not sell many minutes and as fixed costs are high then the cost per sold unit is much higher than with companies that already have a large customer base.

98. The small size of the Icelandic electronic communications market is likely to severely restrict companies from the point of view of economy of scale. Though there is considerable development in electronic communications equipment, carrier grade equipment is always expensive and is manufactured for large-scale operations. For this reason it is unlikely that there will be any increase in operators of mobile phone networks from the current operators, that is Siminn, Vodafone, Nova and IMC³² unless there are significant changes in the investment requirements for such operations.

99. It cannot be seen that such changes have occurred on the relevant market that the criteria for economy of scale would have changed significantly from when the last analysis of the market was published in 2007. Entry barriers have not diminished to any extent from this point of view.

100. Economy of scope is the economy where it is less expensive to manufacture two or more goods together rather than each separately. Lower costs result from sharing the use of supplies in production. A good example of this would be the use of an electronic communications network to produce various electronic communications options for end users. Economy of scope can act both as an entry barrier for new parties and has an advantage in the market over competitors. Another example is the shared use of various services for customers, for example, the operation of a service desk and information systems. Sales channels can also be used jointly like salesmen and also branches and advertisements with the same trademark.

101. In this country, the two largest companies on the mobile phone market also provide general electronic communications services and are content providers that sell audio and video material on the companies' electronic communications networks. Siminn is part of the conglomerate (the Skipti Group) which owns most of the country's electronic communications networks, including mobile phone networks and fixed line networks. Siminn and its sister company, Mila, also own most of the telephone exchanges, leased lines and local loops in the country. This Siminn's control over many types of networks and services affords certain economies that make it possible for Siminn to reduce operational costs of the company's mobile phone services. Siminn also enjoys benefits from the interoperability between its 2G and 3G mobile phone networks.

102. Vodafone electronic communications operations are not as extensive as those of the Skipti Group but are nevertheless substantial and have increased in recent years. Vodafone operates fixed line and mobile phone systems but the company is however dependent on the Skipti Group, among other things for lease of local loops and leased lines.³³ Vodafone enjoys a certain economy of scope, which is however in all likelihood, not as great as with the Skipti Group, which operates more types of networks and services.

³² The IMC network is still limited to a few towns in the North and East of the country. Up to this point in time the network has not been used much and the company has had very few Icelandic customers during its 10 years of operations. The company did however at the end of 2009 make a roaming agreement with Siminn and in April 2010 it commenced marketing on the Icelandic mobile phone market under the name of its sister company, Alterna Tel ehf. The company has applied for the renewal of its long term frequency licence and has announced ideas for developing a mobile phone network in this country. On 14 February 2012 PTA granted IMC extended frequency licence for 10 years.

³³ Vodafone is not as dependent on product supply from the Skipti Group as it used to be, among other things, because the data transfer utility Gagnaveita Reykjavíkur and other local operators have installed fibre-optic supply lines in buildings in specific areas and even in whole municipalities. Such fibre-optic networks are open to service providers such as Vodafone. In addition to this, Vodafone has leased one optical fibre from NATO, which circles the whole country. For this reason Vodafone is not as dependent on the leased line offer from Mila as it was before.

103. It is clear from the above, that both Siminn and Vodafone enjoy economy of scope. The Siminn economy of scope is however greater, which makes it possible for the company to offer services at a lower price. It is therefore difficult for others to offer the same price as Siminn, both on the retail and wholesale markets.

104. Given the above it is the opinion of the PTA that there is a significant economy of scope on the relevant market, which results in a significant entry barrier.

4.3.5 Technical superiority

105. A company's superiority in technology and knowledge can create barriers for new companies that wish to enter a market. The funding of research and development is an unrecoverable cost and many years often pass before results see the light of day. The importance of technological advantage is much greater on markets where there is little innovation and technological development.

106. Though knowledge in the development and operations of mobile phone networks is widely available, for example from suppliers of equipment, one must consider in-house knowledge in companies to be much more economical and easier to apply than knowledge that is bought in. Long experience of the market, particularly with Siminn, but also with Vodafone, is likely to create easier access to technological knowledge for these companies than is the case with new companies in mobile phones services, such as Nova and Tal, or with new companies like IMC.

107. Technological superiority provides companies that are long established on the market with something of an advantage in competition, but can hardly on its own be considered an entry barrier. As an addition to other factors one can, however assert that this factor strengthens the position of the largest companies on the market and makes entry more difficult for new companies.

4.3.6 Access to finance

108. Access to finance can have a deciding influence on the possibilities for a company on a competitive market. This particularly applies to markets that demand high initial investment. The difference between companies, with respect to access to finance could be a barrier to entry. Financially strong companies with good access to finance, other things being equal, are in a better position and can more easily protect themselves from competition than comparable companies that do not have as good access to finance. Good access to finance can both represent an entry barrier and can indicate market power.

109. It is an extremely expensive and risky enterprise to develop a mobile phone network with comparable distribution to those of Siminn, Vodafone and Nova. These companies have already financed the development of their own networks. It is thus a significant barrier to entry, if new companies do not have good access to finance for the same kind of development.

110. Very unique circumstances pertain on financial markets at this point in time. There has been a climate of international financial crisis in recent years and the financial crisis in this country has been particularly difficult and has impinged on all economic activity in this country. One must consider it certain that financing is tighter for all companies on the relevant market and that this factor does not give specific companies on the market the competitive edge they once enjoyed. It is on the other hand clear that finance for new investments in networks is harder to get than before and can thus be a significant entry barrier to the market

where entry requires considerable investment. The effects of the recession will in all likelihood diminish as time goes on, but it is likely that they will have a negative impact on the possibilities of entry into the market for new companies during the coming years.

4.3.7 Barriers in the development of distribution and sales systems

111. Developed distribution and sales systems can act as entry barriers for new entrants. This particularly applies on markets where substantial costs are tied up in the development of distribution and sales systems or where all the companies have made sole agreements with the largest and/or most important distribution parties on the market.

112. The sale of mobile phone services is implemented through a number of channels. Mobile phone companies have their own sales outlets where they sell handsets and mobile phone services. Handsets and services are sold on the Internet and it is possible to buy mobile phone cards in a variety of shops, for example, food stores, kiosks and petrol stations. The incumbent companies on the market have established their own sales outlets, Internet shops and sales agents. Developing such facilities entails costs and is time-consuming. This gives incumbent companies a certain advantage, but it cannot be seen that this represents a significant entry barrier as new companies can concentrate on distributing at few locations which have the highest density of population.

4.3.8 Vertical integration

113. Vertical integration exists where the same party operates on more than one production and/or sales level, for example, he manufactures goods, sells them to another party in wholesale, and also sells the goods himself at retail level. A company that integrates varying operations in this manner in the value added chain, can on the basis of its position on the wholesale or retail markets erect barriers to competition on the market in order to strengthen its position against competitors.

114. One can define Siminn, Vodafone and Nova as vertically integrated companies as they operate substantial electronic communications networks and have the possibility of selling wholesale access to these networks while also providing services to end users in the form of sales, marketing, assistance for customers etc. This form of integration is characteristic of companies in mobile phone operations and it is possible that new mobile phone companies would act in a similar manner.

115. Vertical integration within the conglomerate to which Siminn belongs is more extensive than with other parties on the market, as Mila, the sister company of Siminn, controls various facilities that are essential for the operation of mobile phone networks, that is leased lines, masts and related facilities. Obligations that have been imposed on Mila on the markets in question do however limit the impact of this integration. In 2007, network operations were mostly separated from services with the founding of Mila at that time. The general communications network was allocated to Mila while the mobile phone network remained with Siminn. The company's communal use of facilities and support services has however increased recently as a result of organisational and economic efficiency measures within the group. These measures were announced with the press release on 29 September 2011, where it said among other things that synergies were being taken into account between subsidiaries of Skipti, with Mila operations being moved to the head offices of Skipti and Siminn and where the new position of technology manager would support harmonisation of technology within the group. The PTA considers this an indication that Siminn can benefit from a connection with Mila. On the other hand, these efficiency and money-saving measures

are also an indication of the fact that the power of the group has diminished in recent years.

116. The companies incumbent on the market have made efforts to maintain vertical integration and have long been unwilling to permit the entry of new parties to the mobile phone market that have intended to concentrate on the retail sector, rather than on major network development. As an example of this one can point out that no independent company had made an agreement on resale or on virtual network access with a network owner before obligations were imposed in 2007. There are only two independent companies operating on the retail market that do not operate their own networks, i.e. Tal and Símafélagið ehf. The origination of Tal's first agreement for resale can be traced back to the time when Vodafone controlled that company.³⁴ Alterna is also a retail company and that company forms a single economic unit with IMC which operates a mobile phone network in part, but operates most of its services on the Siminn network. In recent years there have been more signs of willingness to make agreements on access to mobile phone networks and both Siminn and Vodafone have for example endeavoured to gain Tal as a customer, as will be discussed in more detail in Chapter 4.4.

117. The position of companies operating on the retail market in mobile phone services strengthens their position on the wholesale market. The large customer base of the largest mobile phone companies gives them a competitive advantage and makes it more difficult for new companies to enter network operations, as they need to expend considerable energy in attracting a large number of users to their networks for their investment to prove feasible.

118. The PTA considers that vertical integration represents an entry barrier to the relevant market.

4.3.9 Scope of supply

119. One must consider it likely that for consumers to consider a new party as a realistic option, such a party would need to enter the market with a full offer of service options. This increases the risk on entry into the market because of the increased investment for developing systems, because promotional work is more complex and costly and because it is most likely that it will take longer to enter the market from the time of the initial investments because of more complex implementation. Among the things that a mobile phone company needs to be able to offer is access to various kinds of content and access to international roaming. Considerable time and money is spent in making such agreements.

120. Supply of other electronic communications services, such as Internet connections, television and fixed line telephone, makes companies more attractive in the eyes of consumers, as they can buy all these services at one location. Surveys made by the PTA, have

³⁴ According to the decision of the Competition Authority (CA) no. 27/2009 from 2 July 2009, a settlement was made between the institution on the one hand and Teymi hf. and Vodafone on the other hand in the matter of the companies' breach of the CA decision no. 36/2008 (Merger of Teymi and IP-fjarskipti ehf. (previously Hive and now Tal) and Article 10 of the Competition Act (illegal collusion). Teymi is the parent company of Vodafone and the company was authorised by CA to purchase a 51% holding in Hive (now Tal) in 2008 subject to conditions. With the CA decision no. 27/2009 Teymi and Vodafone agreed to abide by specific mandates that were intended to ensure active competition on the electronic communications market. Among other things the five-year sole agreement between Vodafone and Tal, that Tal should only purchase access to the Vodafone mobile phone system, was to be revoked. In addition to this Teymi was obliged to sell its share in Tal within a specified period of notice. The sale of IP-fjarskipti to Audur I Investment Fund was announced on 22 June 2010. In this way all ownership connections were severed between Vodafone and Tal. In May 2011 Vodafone and Tal announced the planned merger of the companies to CA. In October 2011 the CA disallowed the merger.

shown that customers would rather not buy services from many parties, that is to say that they would like to have everything with one party.³⁵ This first and foremost applies to those customers that buy more than one service from electronic communications companies, such as telephone, television and Internet. Those companies that only offer mobile phone services do not have the possibility of offering their customers comprehensive electronic communications services. The market share that Nova has achieved, and this is a company that only operates a mobile phone network, has been based on a marketing campaign and on free offers to younger users or to those one may consider unlikely to use the full service offer of an electronic communications company. It is clear that new parties to the market that concentrate solely on the mobile phone market do not have the same access to all customer groups as those that have a broader service offer.

121. In the opinion of the PTA the necessity for a broad service offer is an entry barrier. It has been shown that a large number of customers endeavour to have everything at one location, and are thus not willing to take part of their business to other parties unless there are other advantages and/or on the basis of special discount offers.

4.3.10 Overview of entry barriers

122. When entry into the market requires that sunk costs are a large proportion of total costs for developing new operations, then this is in itself an entry barrier, because if entry into the market fails then the owners can at best only recoup a small part of the costs when operations are ceased. A high proportion of sunk costs is thus an increased risk for those who wish to enter the market and is a certain deterrent to competing with those incumbent on the market. This particularly applies to those who plan to develop their own network. All marketing and promotion costs for new companies are e.g. sunk costs, because these are costs that cannot be recouped should operations be ceased.

123. The capacity of one party to assimilate sunk costs more easily than another is the part of operations that distorts competition most, as such a party is faced by less risk than the others.

124. With the above discussion in mind one can conclude that there are significant barriers to entry for new companies to enter the mobile phone market. As has been stated above, it is only Siminn, Vodafone and Nova that have any significant operations on the relevant wholesale market.³⁶ In this connection it is worthwhile pointing out that there is no shortage of frequency licences for allocation in Iceland as is the case in some larger European countries. The small size of the market in this country has a restraining influence on the development of more networks in this country. It still for example remains to be seen whether the IMC development plans will be implemented. One must consider that access to operational mobile phone networks, for example in the form of domestic roaming, resale, virtual network, co-location and sharing could be an important factor towards reducing access barriers to the mobile phone market.

125. It is clear that there are significantly high sunk costs incurred in developing a mobile phone network with adequate distribution in this country. The development of mobile phone networks in Iceland needs to be viewed in the light of the small population and of the

³⁵ The Capacent Gallup survey for the PTA, May 2010.

³⁶ Operations of IMC in Iceland have been negligible to date. The company has, however, announced a planned marketing campaign on the Icelandic mobile phone market and the development of its network in the coming months.

saturation of the mobile phone market.

126. It is difficult for new companies to develop facilities with the same distribution as Siminn and Vodafone and it is also difficult for companies to enter the market if they do not have access to networks that make it possible for them to provide services everywhere in the country. The Siminn position is stronger than that of Vodafone in that Siminn has developed a long range 3G network that covers the whole country while Vodafone only has a 2G network. The current situation is that Vodafone has access to the Nova 3G network, but that network is much more geographically limited than the Siminn 3G network that covers the whole country.

127. This economy of scale exists on the relevant market, which can both act as an access barrier for new parties and a competitive advantage for incumbent companies. One must consider that both Vodafone and Nova have suffered certain disadvantages from having entered the mobile phone market later than Siminn. Siminn has for many years enjoyed the advantages of having greater scope in its operations.

128. The strong position of the Skipti Group on other markets, particularly the fixed line market and markets for local loops and leased lines, creates a unique position for Siminn and can constitute an access barrier for new companies that wish to enter the mobile phone market, as they need in most cases to make an agreement with Siminn or its sister company Mila for access to networks and facilities.

129. The necessity for a broad service offer is an entry barrier. A large proportion of customers seek to have everything at the same location so comprehensive service is necessary to reach them. Parties, who only offer mobile phone services, have thus limited possibilities to appeal to all customers. Other factors such as access to finance and technical superiority can make entry into the market more difficult but they do not constitute entry barriers each on its own.

130. On examining the above issues as a whole the PTA considers there to be significant entry barriers to the mobile phone market. This is in accordance with the conclusions of the EU Commission and ESA in recommendations on the relevant market and in the Explanatory Note from the Commission to these recommendations. It was stated that the Commission considered that in general this was the first condition for the existence of high and non-transitory entry barriers.

131. When discussing entry barriers the Commission deals mainly with two issues. First there was discussion on limited offer of frequency licences. That issue is not as limiting a factor in this country as it is in many other places, as there are still a considerable number of unused mobile phone frequencies. On the other hand it is difficult to allocate fully corresponding frequency licences to those held by the largest companies on the market because nearly all 900 frequencies have already been allocated.

132. Another issue that the Commission discusses as entry barriers is the number of mobile phone networks that the relevant country market can support from the point of view of economics, as this is limited by the fact that a specific number of users are required to achieve economy of scale. This issue is particularly relevant to this country as the population is among the smallest in the EEA area.

4.4 Criterion 2: The market shows no tendency towards competition

133. Another criterion that needs to exist is that active competition is not expected during the period of reference, where one normally expects a market analysis to apply to the following 2 to 3 years. It has to be examined whether active competition can flourish on the market if obligations are not in place on dominant parties in the market. The issues that the PTA considers appropriate to examine in order to assess the possibilities of active competition are following:

- Developments in market share
- Price development and pricing behaviour
- Behaviour on the market and thus incentives for competition
- Control of facilities that are difficult to replicate
- Product differentiation and integration of services
- Barriers to growth
- Possible competition
- Market concentration

4.5 The circumstances in Iceland

134. In Iceland are four companies that can be counted as network operators and service producers at wholesale level. These companies do however differ as has been stated previously. Siminn operates GSM network and its UMTS network covers most of the country and the coastal seas. Vodafone operates the GSM system, but covers most of the country and the coastal seas. Nova operates a UMTS system that covers built up areas and thus most of the country's population, but its network does not cover a geographically large area. IMC Island has a small system that reaches a few of the smaller townships in the country and the company's services are operated almost entirely through the Siminn network. To this one can add that IP-fjarskipti (Tal) has an agreement on virtual network access to the Siminn mobile phone network and resale access to the Vodafone network. The company Símafélagið ehf. resell mobile phone services at retail level, but does not operate any network or part of a network in its operations.

4.5.1 Developments in market share

135. The first point worthy of examination when evaluating whether market is tending towards active competition is market share of the companies on the market. A non-transitory high share for one company can indicate that it has significant market power, which means that there is no active competition on the market. The mobile phone market in this country has long been characterised by oligopoly and Siminn has had most market share on this market from the inception. Market share can be assessed from companies' revenue from mobile phone operations, from the number of minutes of telephone calls from mobile phones and from the number of customers. When evaluating the position of a mobile phone network operator on the wholesale market then its market share is normally assessed on the basis of the number of customers and the number of originating minutes.

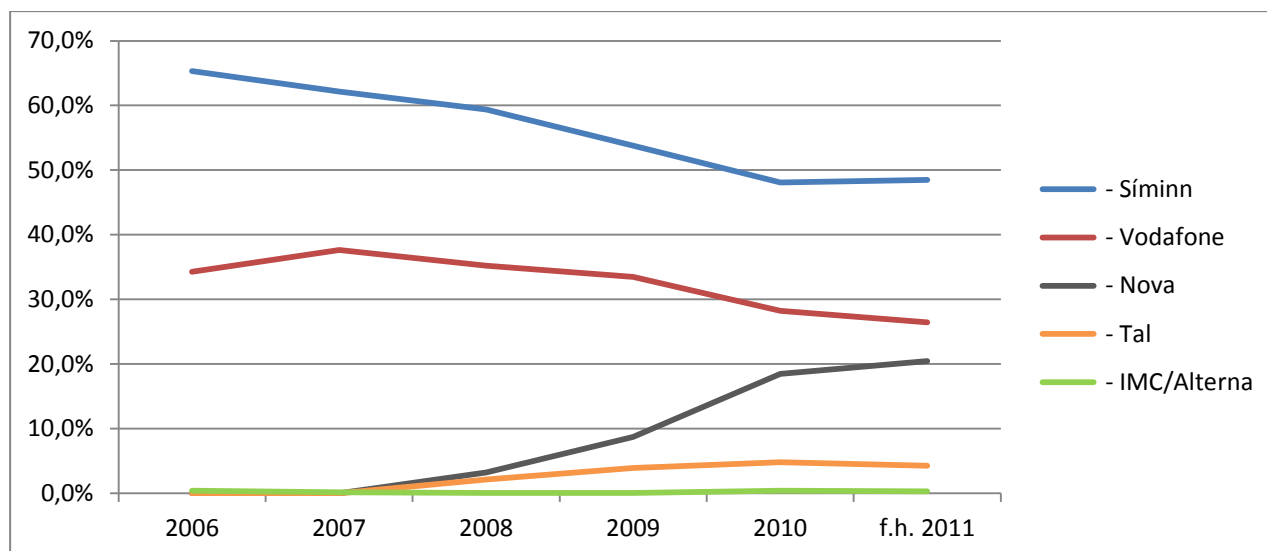
Retail market

136. In the opinion of the PTA, it is necessary to measure market share, both by the number of customers and by revenue in order to get the best picture of a company's position on the retail market. The position of Siminn is still such that the company's market share is more than that of other companies on the market. The Siminn market share is nevertheless

continually decreasing, both with regards to revenue and the number of customers.

137. In the following illustration one can see the development of market share against retail revenue from the last market analysis. In the retail revenue there is revenue from telephone calls and related services, such as SMS or data transfer.

Figure 4.1 Retail revenue from mobile phone operations by companies 2005 - 30 June 2011



Source: Post and Telecom Administration.

138. In the above illustration of development of market share on the retail market by revenue one can see that instead of two companies on the market at the end of 2005, Siminn and Vodafone, there were five companies on the market in the middle of 2011, Siminn, Vodafone, Nova, Tal and Alterna. Tal commenced operations in 2006 as a company called Sko, which was owned by Vodafone and was a budget company. Sko then merged with IP-fjarskipti (that then used the trademark Hive and provided data transfer services) in 2008 and was in majority ownership of Vodafone until the company was sold in 2010 at the demand of the Competition Authority.³⁷ Nova commenced operations at the end of 2007 and the company has developed a 3G network that reaches about 90% of the population, first and foremost in urban areas. A new service provider on the retail market, that is Símafélagið, recently began resale of mobile phone services, but the company's market share was not measurable by the middle of 2011.

139. Siminn retail revenue was a little under [45-50]³⁸% of market revenue in the middle of 2011, but had been [65-70]% in 2005. The Siminn share by revenue has thus dropped by [15-20] percentage points during this 5 1/2 year period. The main change was in the years 2008 and 2009 after Nova entered the market, and in addition to this the Tal performance has also contributed to the reduction of the Siminn market share. The Vodafone market share has dropped from [30-35]% in 2005 to about [25-30]% in the middle of 2011. The reduction in the Vodafone market share can mostly be attributed to the entry of Nova into the market. Nova commenced operations at the end of 2007 and the company's market share has grown

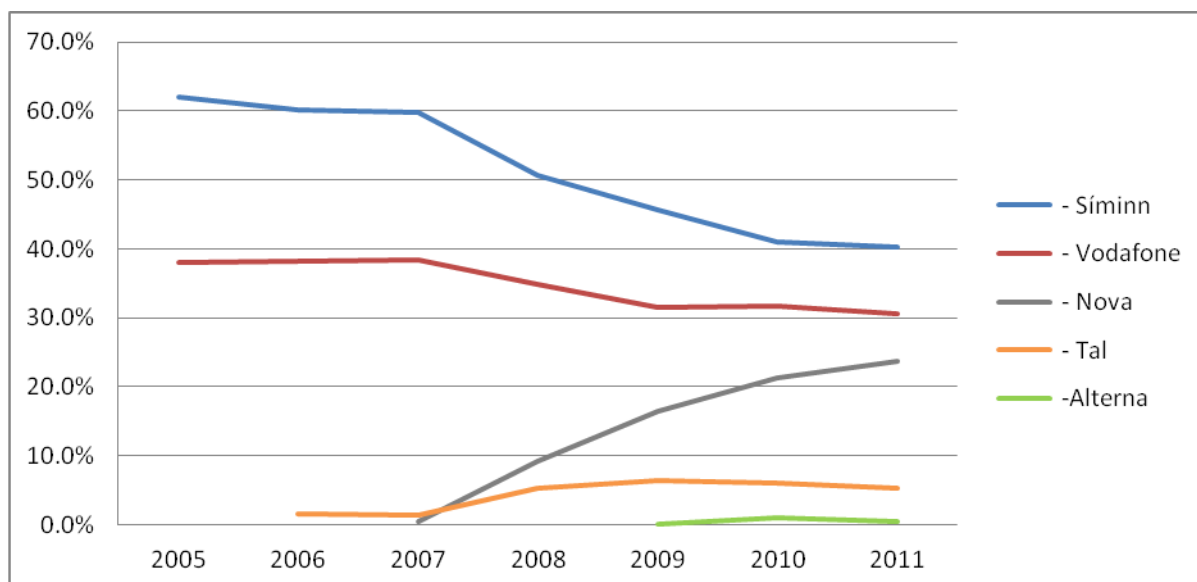
³⁷ See decision of the Competition Authority number 27/2009, from 2 July, 2009. In May 2011 Tal and Vodafone notified the Competition Authority (CA) of the companies' planned merger. With the CA decision no. 31/2011 from last 5 October the institution disallowed the proposed merger.

³⁸ Deviation band included for reason of confidentiality. The same applies for square brackets here below.

quickly since then and was about [20-25]% in the middle of 2011 by retail revenue.

140. In figure 4.2 one can see the development of market share by number of customers in retail, i.e. fixed subscriptions and prepaid telephone cards, from the end of 2005 and up to the middle of 2011.

Figure 4.2 Development in number of customers, 2005-30 June, 2011



Source: Post and Telecom Administration.

141. Siminn had 62% market share at the end of 2005 by number of customers. Siminn market share remained fairly stable up to 2007 and was then about 60%. With the entry of Nova into the market in the end of 2007, the Siminn market share dropped considerably, and in the middle of the year the Siminn market share had been reduced to 40.3%. So the Siminn reduction is a little under 22% for a 5 1/2 year period, including 20% from the end of 2007.

142. Vodafone also loses market share during the same period where the company's market share drops from 38% at the end of 2005 to 30.5% in the middle of 2011. It has to be kept in mind that the former sister company of Vodafone, Tal, had 5.2% market share in the middle of 2011 so these two companies together, maintained almost unchanged market share for the period. Tal came under new ownership in 2010 and has moved most of its mobile phone services over to the Siminn system. In May 2011 an agreement was made for the purchase by Vodafone of all share capital in Tal with the reservation of endorsement by the Competition Authority (CA), but with the CA decision no. 31/2001, from last 5 October, the CA disallowed this merger so the companies are not related today.

143. The entry of Nova into the market has had a major impact on the position of the companies that are already on the market. In the middle of 2011 the Nova market share had reached 23.7% by number of customers after the company had been on the market for 3 1/2 years.

144. Siminn market share is higher by retail revenue than by number of customers. This difference has increased considerably since 2005 and up to the middle of 2011 or from being [0-5] percentage points to being [5-10] percentage points, but Siminn has higher average revenue per customer than other mobile phone companies and then, particularly compared

with Nova and Tal. The above could indicate that Siminn has lost its market share in the younger age groups, as they are in general, more mobile and more sensitive to special offers plan than older customers who do not have as price flexible demand as younger users. On the other hand, the Siminn position on the corporate market remains strong.

145. In the light of the fact that relatively little real wholesale has taken place in the past years in the relevant market in this country until very recently, it is necessary to evaluate market share of companies on the relevant market on the basis of their position on the retail market. The PTA considers that market share at retail level is an indication of market strength of companies at the wholesale level.

146. In the PTA regular collection of statistics for the first half of 2011, it came to light that the Siminn market share by number of minutes in retail from mobile phones has also fallen during the year, i.e. from 40.9% to 39.1%.³⁹

Wholesale market

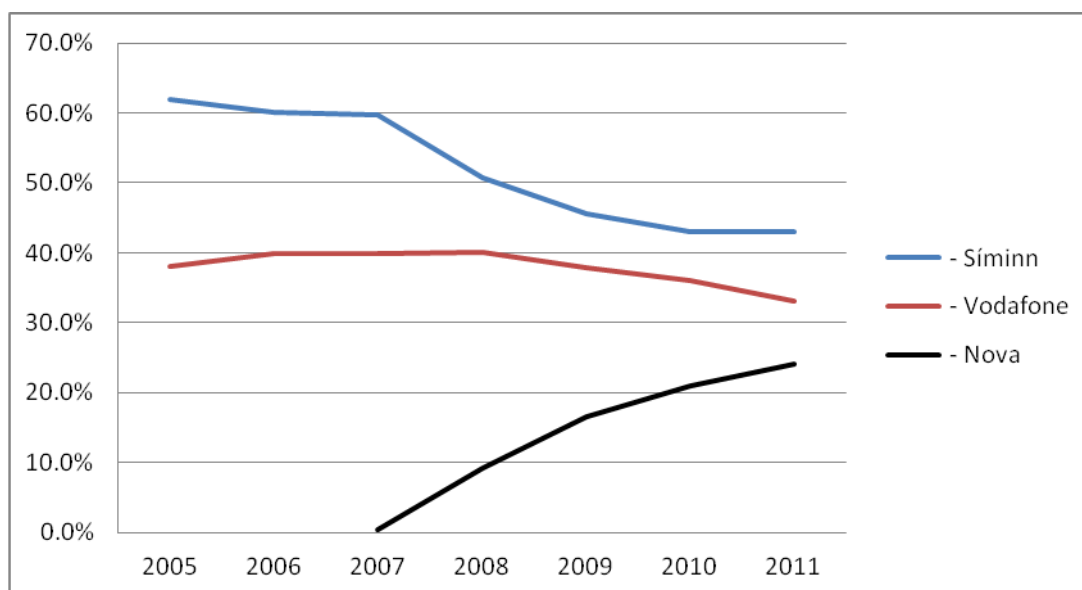
147. When the position of companies is evaluated on the wholesale market for access and origination of telephone calls in public mobile phone networks then the PTA considers that the market share by number of customers and by number of origination minutes gives the best picture of their position. It is not realistic to evaluate revenue in wholesale from the available information, as the arrangements vary between companies and calculations are subject to uncertainty because of internal sales of mobile phone network operators.

148. There are three active network operators on the market. Of these two have mobile phone networks with distribution that covers the whole country, Siminn and Vodafone, while the Nova network has distribution that reaches approximately 90% of the population. IMC is a registered network operator but in the light of the very small size of the company's network then the operations of IMC/Alterna are almost equivalent to those of a virtual network company. The PTA considers Vodafone and Tal to have been one company group up to June 2010, as the companies were in majority ownership of the same owner for a period of time and it was therefore not possible to regard Tal as an independent resale party. Up until June 2010 there was thus no independent resale or virtual network party operating on the mobile phone market, except possibly IMC/Alterna, which commenced a marketing campaign on the mobile phone market in April 2010 and Símafélagið which made a resale agreement with Vodafone in 2009, but its market share is still negligible.

149. Figure 4.3 shows the development of market share on the wholesale market by number of customers in individual mobile phone networks since the last market analysis and up to the middle of 2011. In the Siminn network there are Alterna customers and the majority of Tal customers (for the year 2010 and the first part of 2011).

³⁹ See statistics on the Icelandic electronic communications market for the first half of 2011, table 15.

Figure 4.3 Development in number of customers in individual mobile phone networks, 2005-30 June, 2011



Source: Post and Telecom Administration.

150. In the above illustration one can see that up to the entry of Nova into the market there was very little movement, as Vodafone and Siminn were then alone on the market. With the entry of Nova there were major changes to the market and to the service offer, particularly with free on-net telephone calls and increased data transfer with 3G technology. There seems to have been some deceleration in the increase in Nova market share while the Siminn market share has continued to drop.

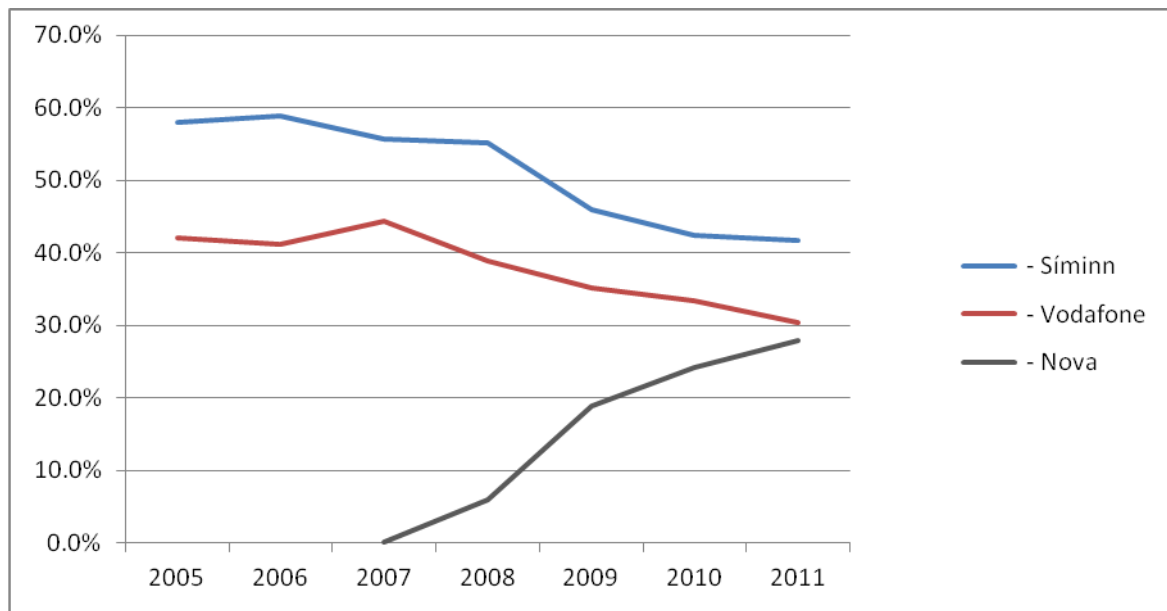
151. From the end of 2005 the Siminn market share by number of customers has dropped from 62% to about 43% in the middle of 2011. The reduction is 17 percentage points over a period of 5 1/2 years. The main explanation is the entry of a third network operator, Nova, as from the end of 2007, up to the middle of 2011 the Siminn market share dropped by about 17 percentage points. Almost all access transactions with Siminn wholesale department for the first part of the period were with the company's retail department, but some of Tal's customers were moved into the Siminn system in the last months of 2010 and then in greater numbers in 2011 in accordance with the virtual network agreement between the companies, as were also customers of IMC/Alterna from April 2010 according to the roaming agreement between the companies.

152. During the period that is taken here for reference the market share of Vodafone by number of users has decreased from 38% in 2005 down to 33% in the middle of 2011, but in the years 2007-2008 its market share was about 40%. From the entry of Nova into the market the Vodafone market share dropped by more than five percentage points but one can probably assume that the arrival of Tal initially had the effect that Vodafone mostly held its market share at wholesale level. During the past year however, a large number of Tal customers have been transferred from the Vodafone mobile phone system over to that of Siminn.

153. Nova started operations late in 2007 and its market share during that year was considered hardly measurable. Nova has grown rapidly during the period specified above and its market share had reached a little under 24% in the middle of 2011 by number of customers.

154. Figure 4.4 shows the development of market share on the wholesale market by number of originated minutes in individual mobile phone networks since the last market analysis and up to the middle of 2011. In the Siminn network there are Alterna customers and the majority of Tal customers (for the year 2010 and the first part of 2011).

Figure 4.4 Total minutes from mobile phone networks 2005 - 30 June, 2011



Source: Post and Telecom Administration.

155. There is a certain difference in market share between the companies depending on whether one applies total number of minutes or number of customers. This difference is mostly explained by the fact that the companies have offered free minutes for on-net calls to varying degrees. On the other hand, the development has been similar during the last years, regardless of whether one looks at the number of customers or number of minutes, as market share of mobile phone network operators is steadily levelling.

156. At the end of 2007 Siminn had 56% market share by number of minutes but by the middle of 2011 the company's market share had dropped to 42% and had thus dropped by 14 percentage points during the period. Changes in market share can mostly be attributed to the entry of Nova into the market.

157. The Vodafone share has also dropped considerably, from 46% at the end of 2007 to 30% in the middle of 2011, which is about 16 percentage points. Tal market share is included with that of Vodafone up to the end of 2010 as Tal was then completely within the Vodafone network up to that point.

158. Nova started operations at the end of 2007 and had in the middle of 2011 gained a little under 28% market share by number of minutes. This is a considerably higher proportion than by number of customers, and particularly if one looks at the company's market share by retail revenue. It is mostly explained by the fact that Nova has placed great emphasis on offers that include free on-net calls which had been offered to all the customers regardless of their subscription model.

159. The number of telephone call minutes from mobile phones has increased considerably

in recent years and this development seems to be continuing though there has been some deceleration in the increase in 2011. This development can doubtless be largely attributed to the many free minutes offers from the telephone companies and this is also a development that has taken place in neighbouring countries where people are using fixed line telephones much less than before. The free minute's offers allow customers to call certain friends within the system without being charged for the minutes.

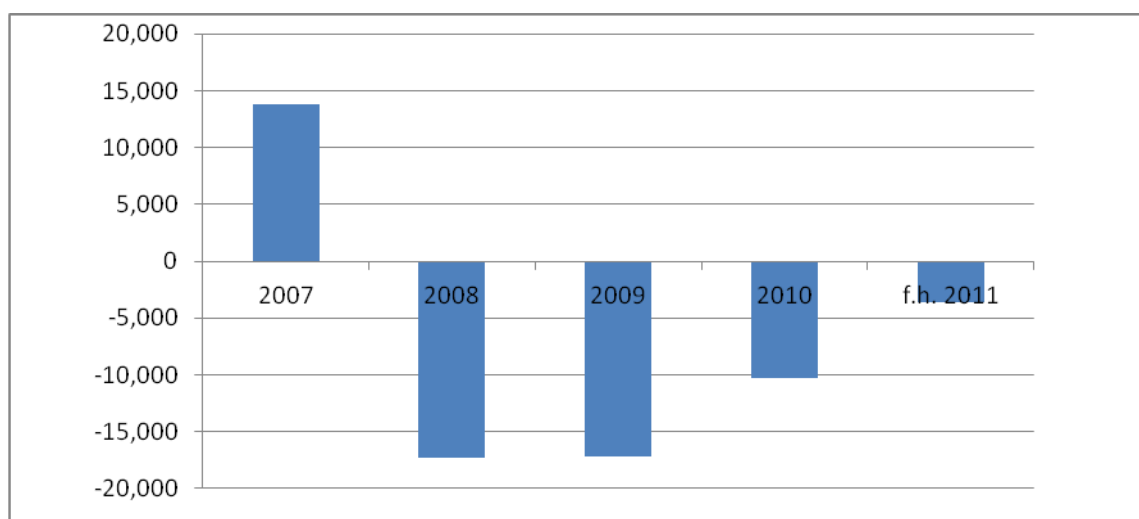
160. If one looks at the developments of recent years, Nova and Tal have entered the market and now have almost one third of all minutes, based on figures from the middle of 2011. This has thus had a considerable impact on the development of competition on the mobile phone market. Because of the large increase in total minutes with the entry of Nova and Tal into the market one can consider it likely part of the total minutes of these companies is in addition to the market and has not been taken from incumbents. In this connection one could note that there was a spike in the total number of minutes in 2008 when Nova entered the market and offered unlimited on-net calls.

161. One can consider that net operators' market share measured by number of customers will give a better picture of the company's market strength than market share by minutes for the period named above. The reason for this is that higher average use can, among other things, be attributed to terms offered to users in the form of free minutes in calls to specific numbers, their age distribution etc, which distorts evaluation of the strength of the companies in question on the market. Though minutes increase on a company's network this does not necessarily provide increased market power if it is not accompanied by a corresponding increase in users and revenue.

162. It is important to keep in mind that development of market share during recent years is explained, first and foremost by the entry of a new network operator and not by development resulting from the opening of wholesale access to mobile phone networks. It is not realistic to allow for new network operators in the near future because of the small size of the market and because there are already three large networks on the market. It is very expensive to develop a mobile phone network that covers the whole country and it is clear that access to capital will, in all likelihood, not be available in the coming years to finance such development. Development in share of the wholesale market will thus, first and foremost be decided by how successful Siminn, Vodafone and Nova are in the competition, including competition for the business of virtual network and resale parties.

163. Siminn reacted to increased competition among other things, with the new subscription option, which was called "Ring" in 2009. At the same time Siminn made agreements with Tal and IMC on wholesale access for the years 2009 and 2010. Despite these actions by Siminn, the company has not succeeded in reversing the development in market share and its customers are considerably fewer than in 2007 and they have continued to drop in numbers, according to the newest figures, despite the increase in market size during the same period.

Figure 4.5 Development in number of customers in retail at Siminn 2007 - 30 June 2011



Source: Post and Telecom Administration.

164. The agreement between Siminn and IMC from November 2009 is for three years. Alterna, which is the sister company of IMC, and in fact the service provider for that company on the retail market, thus has access to a network covering the whole country through that agreement.

165. With the agreement between Tal and Siminn from January 2010 for virtual network access and the sale of Tal in June 2010 to a third party, the conditions have been created for Tal business being moved from Vodafone to Siminn in part or totally. In October 2011 [...] % of Tal's customers had been transferred to a virtual network that is co-located at Siminn. Tal had a little over 5% market share by number of subscribers in the middle of 2011. It is still not clear how much will be on the Siminn system and how much with Vodafone, but as is shown above a large majority of Tal customers are on the Siminn system and it is likely that this development will continue though it will be difficult to get all customers to change their SIM cards.

166. The agreement between Siminn and Tal is for a term of three years, the same as the agreement between Siminn and IMC. Among other things it provides for Tal being able to access high-speed data transfer and for Siminn to handle switching of interconnection traffic to the Tal mobile phone exchanges.

167. Siminn strengthened itself with technical and distribution superiority in its long-range 3G network, which its competitors can in all likelihood not match in the near future. In this connection, one can mention the Siminn marine subscription with high-speed data transfer in the coastal waters off Iceland, which is only on offer at Siminn. One could presume that this would gain more business for Siminn, but this has not yet become apparent in the market share statistics that have been gathered.

Summary of development of market share

168. The development of market share during the past years has tended towards levelling between the three largest companies. In particular, the Siminn market share has dropped and the Nova market share has risen. Vodafone share has more or less remained constant. Should this trend continue, then the three companies will become even closer in the near future.

169. The Siminn agreement with Tal and IMC/Alterna on access to the mobile phone network has not yet had a decisive impact on the development of the Siminn market share. Alterna had only achieved about 1% market share at the end of 2010 and had lost about half of this market share in the middle of 2011 and the company is not currently prominent in marketing. On February 14, PTA extended IMC's frequency licence for 10 years with particular coverage requirements, i.e. IMC's network shall cover 10% of the population outside the Southwest and South part of Iceland in 2 years'. The majority of Tal's customers have transferred to the Siminn network in 2011 after a rather slow start in the autumn of 2010. These agreements have not succeeded in reversing the trend that was prevalent in market share on this market, with reference to the year 2011.

170. The PTA does not expect that there will be dramatic changes on the mobile phone market in the near future resulting from the entry of new parties, as was the case when Nova entered the market at the end of 2007. It is not foreseeable that new network operators will enter the market during the period of validity of the analysis, but one could mainly expect impact from the entry of parties that base their operations on access to existing mobile phone networks. This impact will however be much milder than when the third network operator entered the market.

171. Siminn market share has dropped steadily during the last 5 1/2 years and the end of this development is not in sight. The Siminn share was [45-50]% by retail revenue in the middle of 2011, but according to all references that were examined the market share was under 50%. Given the number of customers on the retail market then the Siminn market share had dropped below 40% in the middle of 2011, which is similar to the average market share within the EU of companies with market dominance, where it was considered that there was active competition on the relevant market.

172. There is no longer prima facie evidence of Siminn market dominance on this market, with respect to market share alone as it has dropped below 50% and to about 40% according to some criteria. Market share in excess of 40% could indicate market dominance, but it rather depends on the size of competitors on the market and on the development of market share. The reference of the PTA considers to give the most accurate picture of the relevant market is the number of users on each network, and according to this reference, the Siminn market share is about 43%. The gap between the Siminn market share and that of its main competitors, is continuously being reduced and two of the Siminn main competitors now have market shares of 24% and 33%. In addition to this two new companies have entered the arena that are mainly purchasers on the wholesale market, but that jointly have a few percentage points market share of the retail market. There are no clear indications that this trend will end or be reversed in the near future. There is therefore a certain likelihood that the Siminn market share will drop below 40% during the next 2 to 3 years, but it is however most likely that Siminn will still have the highest market share at the end of this period, if one takes into account the speed of recent developments. Having taken all this into consideration the PTA considers that the development of market share indicates that the market is moving in the direction of active competition.

4.5.2 Price development and pricing behaviour

173. In retail, the price per minute in public tariffs has not dropped much in the past years.⁴⁰ On the other hand it is clear that there has been a real reduction when one considers

⁴⁰ Gathering of statistics by the PTA.

the development of prices in the past years where prices have risen by about 40% since 2007.

174. The market here is mainly characterised by various "friend" and bundle offers which are difficult to analyse and that are difficult to compare between companies. This applies both to the market for individuals and for companies. Charges per minute have not changed significantly, but instead the main manifestation of competition is in package offers where the fixed subscription is higher than for a standard subscription and where the customers receive various additional combinations of included minutes, or "friends" that they can call without paying charges per minute.

175. When Nova entered the market it offered its customers the possibility of calling without a minute charge to anyone that was also a customer at Nova. One could assume that it is probable that this has been the basis for the substantial increase in Nova market share during the past years. Though it is not possible to make a comparison that covers most instances it is possible to assert that the Nova offer was very advantageous for a large group of customers and much more so than a small yet significant reduction for them.

176. Siminn now offers, along with other companies, a service where on-net telephone calls are free. Because of the size of the Siminn customer base one would have expected that this service option, that Siminn calls Ring, would attract more customers. The service has, however, not resulted in arresting the reduction of the Siminn market share. Ring has not been prominent in Siminn promotional material recently.

177. The PTA has now imposed obligations that require that termination rates between companies be reduced and levelled in steps over a three-year period.⁴¹ This will have the effect that it will be more difficult for companies to collect revenue largely from the customers of another company. Further to this, the PTA expects that the levelling and reduction of termination charges will result in lower and more comparable retail prices.

178. Siminn has not up to now been offering the least expensive options. Newer and smaller companies have taken this route and according to the PTA calculator, Nova and Alterna are generally offering the least expensive basic subscriptions.

179. The wholesale market in mobile phones services is relatively new in Iceland as there was no resale or virtual network agreement in existence between unrelated parties before 2009, after obligations to this effect had been imposed. The price of access agreements at Siminn has been lowered recently, first and foremost because of obligations imposed by the PTA on the company⁴² requiring that prices be based on cost analysis.

180. Even though the charge per minute on the retail market has not been reduced at nominal price in the past years one can consider that offers that include a significant amount of free minutes and increased free on-net telephone calls indicate that competition does exist on the retail market for mobile phone services. With respect to the wholesale market, the

⁴¹ See the PTA decision no. 18/2010 (Market 7) from July 2010. In the year 2011 the PTA worked on a review of Market 7 because of the Tal entry into the termination market. In December 2011 the PTA sent a draft of the market analysis in question for consultation to the EFTA Surveillance Authority (ESA). There is no pronouncement on a change to the length of the glidepath specified by the PTA in the PTA decision number 18/2010. Termination charges of all companies will thus be symmetrical on 1 January 2013. The PTA's final decision no. 2/2012 on Market 7 was taken on 13 January 2012.

⁴² The PTA decisions numbers 4/2007, 19 and 20/2009 and 8/2010 (Market 15).

Siminn tariff has been lowered and the obligations have had an impact there. Other wholesale prices on the market are not clear but it is likely that Vodafone and Siminn are to some extent starting to compete in price on the wholesale market in the battle for those resale parties that are currently on the market or that may enter it. It has been particularly noticeable how these companies have fought for Tal's business.

181. In general, one can say that competition on the market has led to real reductions in price on the retail market in recent years. The above manifested itself in the form of special offers on the retail market and of endeavours to make agreements with retail parties.

4.5.3 Behaviour on the market and incentives for competition

182. The goal being aimed at is that on the market under discussion here companies on the market will make agreements on access to mobile phone networks on a commercial basis. This means that those companies that operate their own networks will give others access to these networks, for a fee, with the aim of being paid for the costs of maintaining a network with the addition of a profit. One has, however, been possible barrier to competition is that network operators have always also been retailers of telephone services. So there are instances where retail interests have overshadowed normal market practices and mobile phone networks have been close to potential buyers. Companies have in this way wished to conduct their retail operations without significant competition and have thus sacrificed possible income from sale of access to their own networks at wholesale level.

183. With the decision of the PTA number 4/2007, Siminn was required to publish a reference offer for access to its network. On 26 November 2009 the PTA endorsed the current Siminn reference offer for resale and virtual network access.⁴³ The Siminn cost analysis was then endorsed by the PTA on 16 April 2010⁴⁴. The above has proved time-consuming in implementation, but the trend has been to the better during the last years, particularly after the PTA made the above mentioned decisions that significantly facilitated competition.

184. Siminn made an agreement on virtual network access with Tal, dated 8 January 2010. This agreement was finally implemented at the end of August 2010 when Tal commenced collection of termination charges. Siminn also made a roaming agreement with IMC, dated 26 November 2009, where the prices are based on cost analysis. IMC has a very small network and IMC/Alterna operate thus in reality as a virtual network party on the Siminn network. Up to that point in time, no company had made a resale or virtual network agreement with a network operator with the exception of the resale agreement between Tal and Vodafone for the years 2006 to 2009, when Tal was in majority ownership of Teymi which was also the owner of Vodafone, and the resale agreement between Siminn and Tal from December 2008, which was never implemented.

185. Vodafone made an agreement in September 2009 with the company Símafélagið ehf. on resale access to its network. This is the first agreement of this kind made by Vodafone with an unrelated company. Símafélagið also made a resale agreement with IMC with the agreement of Siminn in November 2010.

186. Vodafone and Siminn have competed for Tal's business during recent years. When Tal entered into an ownership relationship with Vodafone a resale agreement was made between

⁴³ The PTA decisions number 19/2009 and number 20/2009.

⁴⁴ The PTA decision number 8/2010.

the companies. Siminn then made a virtual network agreement with Tal in January 2010 and thus endeavoured to attract Tal's business to its network. In December 2010 Vodafone also made a virtual network agreement with Tal, which was to replace the older resale agreement.⁴⁵ Tal customers are both on the Vodafone and Siminn networks today but in October 2011 there were about [...] % of them on Siminn systems.

187. In addition to the above specified agreements there are agreements on roaming in specific areas, and an agreement on reciprocal shared use of transmitters between Vodafone and Nova. Nova has announced that it is prepared to offer service providers wholesale access to its mobile phone network.

188. The PTA considers that obligations imposed on Siminn have exerted competitive pressure on Siminn and other network operators to provide access to their networks. In addition to this there are now more service providers on the market and more network operators, which have led to competition between networks operators for the business of service providers.

4.5.4 Control of facilities that are difficult to replicate

189. There was discussion on this issue in the Chapter on entry barriers here above and reference is made to it here. The conclusion of that discussion was that the control of extensive electronic communications networks by dominant companies constituted an access barrier for a new entry companies. There is no likelihood that this will change in the coming years and it will inhibit active competition in the near future.

4.5.5 Product differentiation and integration of services

190. Product differentiation is a policy used by companies to show consumers the difference between their products and those of others. Product differentiation can take place both at wholesale and retail level. If customers experience a great difference between products, then this can lay the foundations for strong customer fidelity.

191. Siminn has the longest history of operations of all telephone companies and has its origins in the founding of Landssími Íslands in 1906. From the start and until not so long ago the company was owned by the state and had a monopoly on the market. Siminn and related companies thus still control a network of local loops, telephone exchanges and infrastructure that was developed during the past decades and which can be leveraged indirectly by their mobile phone system. One could say that Siminn is a trademark that is more than 100 years old. Because of this and because Siminn offers comprehensive services at any point in the country the company has ubiquity⁴⁶ on the market.

192. On the wholesale market there are three parties that can sell access to their mobile phone networks: Siminn, Vodafone and Nova. The networks controlled by these companies vary somewhat in terms of their form and distribution.

193. Siminn is the only company that operates both GSM and UMTS networks and its

⁴⁵ The virtual network agreement between Vodafone and Tal has not yet been implemented, which means that the resale agreement is still in force.

⁴⁶ Ubiquity means that a company offers electronic communications services everywhere within a specific area or country. Those who start a new household or company are thus more likely to select such a party, when choosing a company to provide electronic communications services, rather than a competitor who is not in the same position.

distribution more or less covers the whole country and the coastal waters. Vodafone operates a GSM network that has wide distribution throughout the country and coastal waters while Nova operates a UMTS network that reaches approximately 90% of the population, first and foremost in urban areas. There is thus quite a difference in the geographical distribution of the Siminn UMTS network and that of Nova, which one must consider as strength for Siminn's position on the market, but one has to keep in mind that the Nova UMTS network is continually growing.

194. Varying offers and subscription options can be used by companies to differentiate between themselves. In this country the "friend" offers and free on-net calls are the most prominent. Nova began with free on-net calls and one can assume that this gain them a certain advantage in a specific group of customers, particularly younger customers. Then other companies followed Nova's lead, for example Siminn began to offer comparable subscription options using the trademark Ring towards the end of 2009, but this has not been prominent in Siminn advertisements in recent months.

195. For new companies it can be difficult to make offers comparable to those of companies that have already established themselves on the market. Among other things this is because new companies need to purchase a considerable amount of wholesale service from larger companies and thus do not have the same flexibility in putting together service offers or in pricing, as they would have if all the services were provided from their own networks. Then there is the fact that Siminn and Vodafone offer comprehensive electronic communications services for companies and households. On the corporate market it is tempting to look for offers from electronic communications companies for comprehensive electronic communications services. This can make it difficult for mobile phone operators that do not offer specific services, e.g. fixed line telephone service and/or Internet services. The same can be said about the market for individuals and households, particularly for larger households that seek comprehensive services. This has however not prevented the growth of Nova, which has continually increased its market share since its entry into the mobile phone market and which now has more than 20% market share by number of customers.

196. In the light of the fact that the Siminn share is dropping steadily and the Nova share is increasing steadily, the PTA considers it justifiable to conclude that scope in service offer is not a significant factor in the development of competition on the mobile phone market, neither at retail nor wholesale level.

4.5.6 Barriers to growth

197. A market with great growth potential is much more attractive for new entrants than a market which is mature and saturated. Companies that enter a saturated market cannot gain customers without taking them from others, which is both difficult and costly.

198. Figures show that there has been significant deceleration in the growth on the market in this country and mobile phone cards are now approximately as many as the population of the country. The population of the country has also decreased between the years 2009-2010, a drop of 0.4%⁴⁷. It is thus safe to say that the mobile phone market in this country is approaching saturation. Growth has however continued, measured by the number of minutes in mobile phone networks. This is partly the result of offers for free minutes, but also because more users choose to use mobile phones instead of fixed line phones. There are some growth possibilities in the use of various related electronic communications services, such as data

⁴⁷ <http://hagstofan.is/Pages/95?NewsID=5026> (08.09.2010).

transfer services and value-added services.

199. Growth prospects for the next 2 to 3 years do not indicate that the market will attract much competition from new entrants that are prepared to develop their own networks.

4.5.7 Possible competition

200. As was discussed here above, there are high and non-transitory entry barriers on the relevant market. In addition to this there is the fact that financial markets are difficult so it seems that growth on the electronic communications market has decreased. This further lessens the likelihood of new competition at the wholesale level in this country.

201. The PTA is responsible for allocating frequency licences to companies and now there are four companies operating with their own mobile phone network on the GSM/UMTS frequencies. The companies do however have very varying distribution and technical infrastructure.⁴⁸ As one can assume that a network operator will need 20 to 25% market share in this country in order to achieve the necessary economy of scale, it is unlikely that the Icelandic market will support more network operators than are now operating. Opportunities for new entries into the mobile phone market are thus almost exclusively in the field of resale or virtual network operations.

202. Further to this, the wholesale market is immature, though advances have been made since the end of 2009. Today there are three service providers that base their operations on wholesale agreements with network operators. The combined market share of these service providers is about [5-10]%, regardless of what reference one uses. Despite the fact that the share of the companies in question is not high, network operators are beginning to seek their business.

203. If there are many wholesale purchasers on the market and if they have significant market share it is more difficult for network operators to maintain high prices to them, or to refuse to do business with them. If a network operator demands payment in excess of normal profit from his facilities then the circumstances would be created for a new network operator to enter the market as potential customers would be sufficiently large and numerous for the necessary economy of scale to be a realistic possibility. In this country circumstances are more difficult, as on the one hand the market share that network operators need is higher than in most other places, because of the small population and for geographical reasons, and on the other hand, because the market power of potential buyers is less than in most other places in Europe. The threat to network operators from the entry of a new party to the market is thus rather small in the current situation.

204. The PTA considers that the likelihood of substantial new competition on the network operation market is rather small, at least for the next 2 to 3 years.

4.5.8 Market concentration

205. Despite the fact that the Siminn market share dropped from 2009 to the middle of 2011, particularly with reference to the number of minutes and to customers, and that a new party had entered the market since the last analysis was made, there is nevertheless some

⁴⁸ One of them is IMC which has been operating here since 2000. The company's operations in this country were negligible up to 2010 when it announced plans to develop its own mobile phone network in Iceland and when it established its sister company, Alterna, and launched a marketing campaign. On 14 February 2012 IMC's frequency licence was extended for 10 years. IMC has described its ideas for further distribution of the network.

market concentration. The HHI Index⁴⁹ is used to measure concentration on the market where the sum of the squares of the market shares of each company is found. Given that there are three network operators on the market and that their market share is equal, then the index is 0.33. Concentration on the basis of number of customers at wholesale level in 2010 is 0.35 on the Icelandic market.

206. If concentration on the Icelandic market is compared with markets in neighbouring countries one sees that concentration on the Norwegian market in 2009 was 0.46 (there it is considered that Telenor still has significant market power); it was 0.35 on the Danish market in 2005 when the market was designated as an active competition market by the Danish NRA.

207. The HHI index has steadily decreased on the Icelandic market since 2008 and is now approaching the academic value given three mobile phone network operators on the relevant wholesale market. On the other hand, the index indicates that concentration on the market is still rather high given the situation and that it will be in this state during the period of validity of this analysis, though there is a likelihood that it will fall somewhat.

4.5.9 Conclusions

208. The successful entry of Nova to the market at the end of 2007 is the most significant change that has taken place on the market since the last analysis was made.

209. Siminn still has the largest market share, both at retail and wholesale level, but that share are still falling and there has been a considerable levelling between the three largest companies on the market. The Siminn market share is now similar to the average within the EU for market dominating companies where it is considered that active competition pertains.

210. There are now three mobile phone networks being operated in Iceland that reach a majority of the population. Of these, there are two networks that cover the whole country, at Siminn which has GSM/UMTS networks and Vodafone, which has a GSM network. The distribution of the Vodafone network has increased considerably in recent years. Nova has a UMTS network that reaches approximately 90% of the population, but has nevertheless a limited geographical distribution. The fourth network is that of IMC, which is very small distribution to date, but the company has on the other hand, a roaming agreement with Siminn for the whole country. It is clear that both the networks of Siminn and Vodafone are an option for independent service providers that wish to make an agreement on access. It is conceivable that one could operate a retail company that had access to the Nova network with or without agreements for national roaming over to other networks covering areas that Nova do not reach. So the situation now is that service providers that operate retail mobile phone services, or plan to do so, can approach three companies for access. There is also a possibility of making an agreement with IMC for roaming over to the Siminn network, see the resale agreement between Símafélagið and IMC.

211. The PTA considers that the reluctance to make agreements on access that was prevalent on the market for some time is waning. Subsequent to the entry of virtual network and resale parties into the market there has been evidence of network operators competing for

⁴⁹ Herfindahl-Hirschman Index. The value of the index lies between 0-1. The higher the value the greater is the concentration on the market. If the result is less than 0.1 then action is considered unnecessary. If the result is in the range of 0.1-0.18 then there is average concentration and all over 0.18 means there is significant concentration.

the business. This particularly applies to Tal, which has achieved a retail market share that is worth competing for. Tal initially had a resale agreement with Vodafone, but then made virtual network agreements with Siminn and Vodafone in 2010.

212. Other companies have also been offered access agreements. Siminn made an agreement with IMC at the end of 2009 and Vodafone made an agreement with Símafélagið. IMC also made an agreement with Símafélagið with the agreement of Siminn. It is thus manifest that there is more life in the wholesale market than before. These agreements are in part the result of the access obligations that were imposed on Siminn in 2007. They are however not solely based on obligations, as Vodafone has made agreements despite the fact that it is not subject to any obligations on this market and in addition to this the agreements that Siminn has made go further in some respects than required by the obligations. After independent service providers entered the market there is now an incentive for network operators to gain their business rather than allowing them to go to competitors, as it is clearly in the interests of the network operators to use the excess capacity that exists in their network systems. This indicates that there is no longer need to control access to mobile phone networks with obligations.

213. Concentration on the Icelandic mobile phone market is decreasing, but is still significant, according to the HHI index. It is expected that concentration will continue to decrease on the market in the coming years. HHI is now at 0.35 which is the same value as in Denmark when it was decided to withdraw obligations in 2005.

214. Taking the above into account the PTA have every reason to believe that the Siminn strength will lessen over the period of validity of this analysis and that therefore the market is moving in the direction of active competition. The PTA therefore considers that the market does not fulfil criterion number two that must be in place if the implementation of obligations is to be an option.

215. As all three criteria discussed in Chapter 4.1 need to be fulfilled in order to be able to apply obligations, and as the relevant market no longer fulfils criterion number two in the opinion of the PTA, it is not necessary to examine criterion number three that concerns the application of general competition law and also it is unnecessary to perform further analysis on the state of competition on the market. The following chapters will therefore solely discuss the obligations that are in force on the market and the manner in which the PTA plans to withdraw them.

216. The PTA nevertheless considers there to be a need to continue to closely monitor the market and is prepared to examine whether a new analysis needs to be made should circumstances on the market change significantly for the worse because of a change in structure of the market or in behaviour of network operators.

5.0 Withdrawal of obligations

5.1 General

217. As the conclusion of the PTA, after assessing circumstances on the relevant market, is that the market is moving in the direction of active competition within the time-frame here under examination, the conditions are no longer in place for imposition of ex-ante obligations on undertakings on the market according to the Electronic Communications Act. It is thus clear that the obligations should be withdrawn that were imposed on Siminn with the PTA decision number 4/2007 on 5 February 2007. The PTA intends to withdraw the obligations in force on the relevant market as further detailed in the following chapters.

218. The PTA considers the obligations on the NMT market to be no longer in force because they are unenforceable subsequent to the termination of operations of the NMT network on 1 September 2010 and that therefore there is no need to make a special decision to withdraw them.

219. Obligations regarding access to the Siminn GSM network are however, still in force, and it is necessary to make a decision on the manner in which they will be withdrawn.

5.2 Obligations currently in force

220. With a decision published subsequent to market analysis on 5 February 2007. The following obligations were imposed on Siminn on the wholesale market for access and origination of telephone calls in public GSM mobile phone networks.

a) Obligation to provide access to GSM mobile phone network.

The obligation was imposed on Siminn to accede to normal and reasonable requests for access to its GSM network and to services at wholesale level. Siminn should among other things accede to normal and reasonable requests for:

- National roaming
- Co-location or other types of joint utilisation
- Access to resale
- Virtual network access.

Siminn was to provide access to all GSM mobile phone network exchanges that it was reasonable and normal to provide access to, regardless of when they were taken into service. Agreements on access and origination of telephone calls in the Siminn GSM mobile phone network should be completed within normal time limits and without unnecessary delay. Should Siminn reject a request for access, then the company should provide the applicant with a written reason supported with arguments for the rejection. Wholesale access that Siminn had already provided to its GSM mobile phone network should not be retracted.

b) Obligation of non-discrimination

The application for non-discrimination was imposed on Siminn both with respect to price and other conditions. The obligation for non-discrimination should apply to all types of wholesale access, including national roaming, resale, virtual network, co-location and other types of joint utilisation. The Siminn department responsible for providing access should be separated from other departments in the company and should provide comparable services to all. The dissemination of information from the

department should be in a comparable manner whether to third parties or to other departments within the company. The treatment of information gained by Siminn in making agreements for access should be in accordance with Article 26 of the Electronic Communications Act.

c) Obligation for transparency

An obligation for transparency was imposed on Siminn where the company should publish a reference offer for national roaming, resale and virtual network and should publish information on the characteristics of the network, terms and conditions for delivery and use, tariff and book-keeping information for its GSM mobile phone division.

d) Obligation for accounting separation

An obligation was imposed on Siminn for accounting separation. Such separation should constitute as a minimum that on the one hand wholesale and on the other hand retail GSM mobile phone divisions should have their accounts separated from other operations. The Siminn wholesale prices and internal prices within the company should be transparent, among other things to prevent unfair subsidies. In its accounting, Siminn should separate income, expenditure, assets and capital for its GSM mobile phone network. Siminn should provide to the PTA on an annual basis a breakdown of the operational accounts and balance sheet for wholesale and retail along with a statement of the division of indirect costs that were not possible to assign through comparison with other cost items. The above specified statement should reach the institution no later than 1 April each year for the previous year.

e) Obligation of price control

The obligation for price control was imposed on Siminn. Siminn was to publish access prices for resale, virtual network and national roaming. The price for access to resale and for virtual network should be calculated using the retail minus methodology in the first instance. Retail minus should be a minimum of 35% for pure virtual network access and a minimum of 25% for resale access. Then the percentage should be variable depending on the amount of access to the mobile network infrastructure that was bought. At that time the PTA did not impose obligations on Siminn to cost analyse prices for access to national roaming and for co-location and other types of joint utilisation. The PTA however reserved the right to impose the obligation on Siminn to cost analyse the price for national roaming, sharing and co-location should free negotiation not succeed. The PTA reserved the right to impose the obligation to cost analyse access prices in accordance with the LRIC methodology or with another cost analysis methodology considered most appropriate by the PTA if it came to light that the price decided according to the retail minus methodology did not return adequate results. In order to monitor changes in wholesale tariffs the PTA imposed the condition of all new Siminn wholesale rates and changes to these rates would be notified to the PTA. New wholesale rates would not come into force, without prior endorsement by the PTA. Should the wholesale tariff be based on the Siminn retail tariff then it was necessary that changes in tariffs should be synchronised.

221. The following obligations were imposed on Siminn, for the wholesale market for access and call origination in NMT mobile phone networks.

a) Obligation to provide access to NMT mobile phone network

The obligation was imposed on Siminn to accede to normal and reasonable, requests for access to resale of NMT services. Agreements should be completed within a normal timescale and without unnecessary delays.

b) Obligation of non-discrimination

The application for non-discrimination was imposed on Siminn both with respect to price and other conditions.

c) Obligation for transparency

The obligation was imposed on Siminn for transparency and the company was obliged to publish information on resale price of NMT services.

d) Obligation of price control

The obligation for price control was imposed on Siminn. Siminn should provide wholesale access to NMT mobile phone services for resale. Access prices should be calculated according to the retail minus methodology. Should parties not come to an agreement on price for access to the NMT mobile phone network, the PTA reserved the right to decide the prices using the retail minus methodology.

222. As the NMT service has been discontinued and as the market for access and call origination in NMT mobile phone networks no longer exist in this country, these obligations have no further validity. The PTA considers that they become automatically void.

5.3 The impact of existing obligations

223. Those obligations that were imposed in 2007 created the possibilities for a realistic wholesale market and for the entry of service providers at retail level. They also imposed stricter controls on roaming access and made it easier for companies with smaller networks to make agreements on national roaming.

224. Three companies that operate solely or almost exclusively at retail level have entered the market after the PTA decision number 4/2007, was published. These are Tal that made access agreements with both Vodafone and Siminn, IMC/Alterna that has made an agreement with Siminn and Símafélagið that made agreements with Vodafone and IMC. One can consider that the obligations imposed acted as a catalyst for the development that have taken place on the market, such that network operators have become more willing to make agreements on access. Up until the year 2009, no access agreements had been made except with related companies and roaming agreements had only been made subject to legal obligations. When the implementation of obligations on Siminn had been established in 2009 it was not only Siminn that made agreements on access to its network, but also Vodafone, which was not subject to any obligations on this market.

225. When virtual network and resale parties had entered the market, network operators had an incentive to offer them access rather than take the risk that they would take their business to their competitors on the wholesale market. This is illustrated by the struggle that took place with respect to Tal. The company initially made an agreement with Vodafone when Vodafone owned a controlling interest in the company. Tal subsequently made an agreement with Siminn for virtual network access, which heralded the first competition on the wholesale market. In May 2009 Vodafone then made a merger agreement with Tal, but as stated

previously the Competition Authority did not authorise the merger and Tal is still today an independent purchaser on the relevant market. It is thus clear that both of the largest network operators have a strong interest in Tal's customers. Other virtual network or resale companies are still very small, but have nevertheless been able to procure access agreements variously based on the obligations or on business criteria. It should also be noted that in 2007, Vodafone and Nova made an agreement on reciprocal use of the companies' mobile phone network transmitters.

226. Siminn published a reference offer for resale access, virtual network access and national roaming on mobile phone networks that the PTA endorsed in 2008 and 2009 with specific amendments. Other companies have not published such offers. Siminn has reduced the price for access in accordance with a cost analysis that was endorsed by the PTA early in 2010. After that, the development on the wholesale market took a large leap.

227. Service providers on the retail market have increased by four after obligations were imposed on Siminn on this market in 2007. One of them, Nova, operates its own network partly, and augments its distribution area with roaming agreements with Vodafone. The other companies, Tal, IMC/Alterna and Símafélagið are almost exclusively service providers on the retail market, though IMC/Alterna does collect termination charges as a network operator and in part as a virtual network operator, as Tal does also as a virtual network operator.

228. The increase in service providers has not led to a price war or to noticeable reductions of unit prices on the resale market, but it is clear that prices have dropped in real terms if one looks at price development for the same period. Competition has been based on complex offers where free minutes on-net have been the main feature, in addition to image and related services, such as sound and video material, but general tariffs have not been reduced. On the wholesale market, tariffs have been reduced according to obligations for cost reference, but one could also assume that Siminn and Vodafone have also been competing for service providers on the retail market with offers of better terms to these parties.

229. The PTA considers that obligations on the relevant market have served their purpose for the time being and that while three real network operators are operating on the market and a total of six companies at retail level then the market will move in the direction of active competition without access to networks being controlled with obligations. On the other hand, there could be a need to re-examine the market at short notice if parties on the market become fewer or if network operators close access or increase the price of access so that access is effectively no longer on offer. Then it could be that the Competition Authority might examine concerted rejection of access by network operators with respect to whether this could be the case of illegal collusion.

5.4 Planned decision on withdrawing obligations and on glidepath

230. As previously stated, the PTA plans to make a decision subsequent to this analysis, that obligations that were imposed on Siminn on the wholesale market for access and call origination in mobile phones with its decision number 4/2007 from 5 February 2007, be withdrawn.

231. In paragraph 3 of Article 16 of the Framework Directive 2002/21/EU and in the Explanatory Note to the recommendation from the EU Commission from 2007⁵⁰ it is stated that when obligations are withdrawn, those parties that are affected by the decision are given

⁵⁰ See page 50 in the Explanatory Note.

an adequate glidepath to adapt. The same kind of provision can be found in Paragraph 6 of Article 9 of the Regulation on market analysis no. 741/2009, where it says: *Should the Post and Telecom Administration decide to withdraw obligations that had been in force, then this shall be notified to the parties affected by the decision, with adequate notice before the decision in question is implemented.* The PTA considers it appropriate and proper to adhere to this rule.

232. Those parties first and foremost affected by the decision to withdraw obligations are those companies that have transactions with Siminn on the basis of obligations in force. The withdrawing of obligations can also have an indirect effect on other parties on the market or that are related to the market.

233. Those companies that today have access agreements with Siminn on the relevant market are Tal, which has a virtual network agreement, IMC/Alterna, which has what is called a roaming agreement, which is a kind of virtual network agreement as the IMC network is very small, and further there are Vodafone and Nova who have roaming agreements in a very small number of areas. Símafélagið has an agreement with Vodafone and with IMC, and IMC bases its operations mostly on the use of the Siminn network. Tal also has a resale agreement with Vodafone and in addition to this it has a virtual network agreement, which has not yet been implemented.

234. The withdrawing of obligations could result in the need to review agreements in force to some extent, or to make new agreements. Some service providers on the retail market could need or wish to change service providers on the wholesale market because of change of circumstances. Those parties that have agreements on national roaming may possibly consider it appropriate to enlarge their networks at this point in time. It is not certain that any of these actions may need to be taken but if this is the case to some extent, there could be a need for a considerable glide path for adaptation.

235. The PTA considers it most important that access is assured over a period that should suffice for adaptation. The PTA intends to prescribe that obligations on Siminn to provide access be withdrawn after 12 months from the publication of the decision following this analysis.

236. The PTA considers it possible to have a shorter glide path for other obligations, as they do not have such a decisive impact on retail parties that already have agreements with Siminn. The PTA thus intends to withdraw obligations other than the obligation for access on this market, 6 months after the publication of the decision.

237. It should be noted that the withdrawing of the obligation for accounting separation on this market does not constitute the withdrawing of an analogous obligation on Siminn on the market for termination of telephone calls in its mobile phone network (Market 7).