

Decisions on designation of providers with significant market power and imposition of specific obligations in the markets for wholesale voice call termination on individual mobile networks (Market 2)

Case no. 1605133

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Summary

In light of the analysis of the markets for wholesale voice call termination on individual mobile networks (hereinafter voice call termination on mobile networks, Market 2¹), the Norwegian Communications Authority (Nkom), pursuant to section 3-3 of the Electronic Communications Act, designates Com4, Get, ICE, Lycamobile, Phonero, TDC, Telenor and Telia as providers with significant market power in the market for voice call termination on their own mobile networks.

Nkom has identified a number of competition problems within the relevant markets for voice call termination on mobile networks. The competition problems are largely due to the existence of absolute entry barriers in the relevant markets.

At present it is not possible to offer competing products in other providers' termination markets, nor is it likely that this will happen within a reasonable time horizon. Each provider thus has a monopoly on termination on its own mobile network. Combined with the calling party pays (CPP) principle, absolute entry barriers mean that the providers have little incentive to set efficient prices for voice call termination on their own mobile network. Excessive pricing in the market for voice call termination may have an anti-competitive effect if the excessive price is passed on to the retail market.

In light of the above, Nkom regulates the markets for voice call termination on the basis of principle 2 in Nkom's remedies document. This means that the interests of consumers shall be protected, since replication of infrastructure will not be able to remedy the competition problems in question.

Nkom has considered the appropriateness and proportionality of the available remedies. This decision entails that all providers with significant market power must meet all reasonable requests for interconnection in the form of termination on the providers' mobile networks. Further, an obligation of non-discrimination is imposed on all regulated providers. In addition, Telenor and Telia are directed to prepare and publish standard reference offers. For Com4, Get, ICE, Lycamobile, Phonero and TDC, Nkom considers publication of the companies' termination charges to be sufficient.

The objective of Nkom's regulation of mobile termination rates is that all providers of termination shall have termination charges based on costs for an efficient operator, which means that prices will also be symmetric. Based on updated cost models, the following

¹ In earlier decisions, this market has been referred to as Market 7.

regulatory price caps are imposed on Com4, Get, ICE, Lycamobile, Phonero, TDC, Telenor and Telia:

Maximum price from 1 March 2018	Maximum price from 1 January 2019	Maximum price from 1 January 2020
5.4	4.3	3.2

Table 1: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

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1 Introduction and background

1.1 Introduction

1. Section 3-2 of Act no. 83 of 4 July 2003 on Electronic Communication (Electronic Communications Act) requires the Norwegian Communications Authority² (Nkom) to define relevant product and services markets and geographical markets pursuant to the EFTA Surveillance Authority (ESA)'s Recommendation on relevant markets (the Recommendation)³. Nkom shall analyse the markets and identify any providers with significant market power. Providers designated as having significant market power shall be imposed at least one of the specific obligations provided for in chapter 4 of the Electronic Communications Act. Specific obligations are imposed after an assessment of potential competition problems in the relevant market and the relevant provider's position in this market.

2. Nkom has undertaken several rounds of analysis of the markets for termination of voice calls on individual public mobile networks, hereinafter referred to as the markets for voice call termination on mobile networks. Previous analyses have been based on the prevailing market definitions recommended by ESA. In the 2004 Recommendation, the market for voice call termination was designated as Market 16. The market was retained in the ESA Recommendation from 5 November 2008, but was now referred to as Market 7. The definition of the market remained unchanged.

3. ESA has carried out a further revision of the list of relevant markets and adopted a new recommendation on 11 May 2016⁴. The markets for voice call termination on mobile networks are still included in this list, but are now called Market 2.

4. Nkom's previous analyses are dated 19 September 2005, 8 May 2007, 17 November 2008, 27 September 2010, 15 June 2011 and 13 January 2015. The table below provides an overview of Nkom's decisions and providers that have been designated as having significant market power:

² On 1 January 2015 the Norwegian Post and Telecommunications Authority (NPT) changed its name to the Norwegian Communications Authority (Nkom). In this document, the Authority is referred to as Nkom, including in references to decisions and processes applying to the period when it was called the Norwegian Post and Telecommunications Authority.

³ 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 communications networks and services), as adopted by Protocol 1 thereto and by the sectoral adaptations contained in Annex XI to that Agreement.

⁴ <http://www.eftasurv.int/media/decisions/College-decision---Revision-of-ESA-Recommendation-on-Relevant-Markets-susceptible-to-ex-a.pdf>.

Nkom's decisions	Providers designated as having significant market power
19 September 2005	Telenor ASA (Telenor), Teletopia Mobile Communications AS (Teletopia), Tele2 Norge AS (Tele2), Telia Norge AS ⁵ (Telia).
8 May 2007	MTU Networks AS ⁶ (MTU), TDC AS ⁷ (TDC), Telenor, Tele2, Telia.
17 November 2008	Barablu Mobile Norway Ltd. (Barablu), Network Norway AS (Network Norway), MTU, Phonero AS ⁸ (Phonero), TDC, Tele2.
27 September 2010	Network Norway, Phonero, TDC, Telenor, Tele2, Telia.
15 June 2011	Lycamobile Norway Ltd (Lycamobile)
13 January 2015	Com4 AS (Com4), Lycamobile, Network Norway, Phonero, TDC, Telenor, Tele2, Telia.

Table 2: Operators with significant market power in the markets for voice call termination on mobile networks

5. Nkom has carried out a new analysis of all the markets for voice call termination on mobile networks (Annex 1). In this analysis, Nkom concludes that Com4, Get AS (ICE), ICE Communication Norway AS (ICE), Lycamobile, Phonero, TDC, Telenor and Telia all have significant market power in their respective termination markets.

6. The draft decision, based on the new analysis, was subject to national consultation from 22 August to 19 September 2017. Telenor and Telia gave short comments that did not call for amendment of Nkom's conclusions. Nkom prepared a draft decision and presented an English translation of the documents for ESA notification, cf. Framework Directive Article 7 and ESA's recommendation on Article 7⁹.

7. ESA commented in their letter 13 November 2017 that LTE technologies could have an impact on the cost modelling. Against that background, ESA invited Nkom to reconsider the inclusion of relevant technological developments, such as 4G, in the LRIC model as soon as possible. Nkom takes notice of ESA's comments and agrees on a general basis that new technology could affect the cost calculation. However, Nkom maintains the assessment that it is not proportional to amend the LRIC model at this stage. Based on ESA's comments,

⁵ Telia Norge AS's formal name at the time of the decision was NetCom AS and TeliaSonera Norge AS. From 1 March 2016, the formal name of the company is Telia Norge AS.

⁶ Teletopia Mobile Communications AS was acquired by MTU Networks AS at the beginning of 2007. MTU Gruppen filed for bankruptcy at the end of November 2007.

⁷ Its formal name in the decision of 8 May 2007 was TDC Song AS.

⁸ The provider's formal name in the decision was Ventelo AS. The companies Ventelo AS and Phonero AS merged on 1 January 2015, and the name of the new company is Phonero AS. Phonero AS was acquired by Telia Company AB in April 2017, but remains an independent company.

⁹ http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2011.302.01.0012.01.ENG

chapter 7.4.3 has been updated to better reflect Nkom's assessment regarding VoLTE¹⁰. Nkom will consider the need for updating the LRIC-model based on 1) the take-up of VoLTE, 2) potential changes in legal acts¹¹ and 3) updated recommendations from the Commission and ESA regarding price regulation of voice call termination.

8. This decision has a time horizon of two to three years.

1.2 Legal basis

9. The regulatory framework for electronic communication is based on five directives adopted by the European Union (EU)¹². The directives have been implemented in Norwegian law through the Electronic Communications Act and associated regulations, including the Regulations of 16 February 2004 on electronic communications networks and services (the Ecom Regulations).

10. Pursuant to these rules the obligations for providers with significant market power are determined individually according to specific assessments on the basis of a market analysis and with a limited forward-looking time horizon¹³. Particular attention must be paid to the expected pro-competitive effect of the relevant remedies.

11. In choosing specific obligations, Nkom has taken into account the considerations contained in Nkom's revised remedies document of 12 June 2009¹⁴. The remedies document is based on the document "Revised ERG Common Position on the Approach to appropriate remedies in the ECNS regulatory framework", drawn up by the Body of European Regulators for Electronic Communications (BEREC)¹⁵. The guidelines and principles embodied in BEREC's remedies document are intended to stimulate the development of the single market for electronic communications networks and services as well as facilitate a uniform and consistent regulatory practice in the various member states.

1.3 Structure of the document

12. This decision consists of a main document, containing the background and reasoning behind the obligations that are imposed, plus five annexes. Annex 1 contains the analysis of the market for voice call termination on mobile networks, while Annex 2 contains model

¹⁰ Voice over LTE.

¹¹ EU has a new framework under development and this will probably be included in the Norwegian Ecom Act, See: <https://www.regjeringen.no/no/aktuelt/eu-kommisjonen-med-nytt-forslag-til-ny-regulering-om-ekomsektoren/id2511958/>

¹² Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (Framework Directive); Directive 2002/20/EC on the authorisation of electronic communications networks and services (Authorisation Directive); Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive); Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive); Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications).

¹³ See further details about the time horizon in the ESA guidelines for market analyses and assessment of significant market power, paragraph 20.

¹⁴ http://www.nkom.no/marked/markedsregulering-smp/rammer/introduksjon-til-markedsregulering-smp/_attachment/479?_ts=137da56ab33

¹⁵ BEREC was established on 25 November 2009 and replaced the European Regulators Group for electronic communications networks and services (ERG). In this document, the organisation is referred to as BEREC, including when reference is made to documents published under the name ERG. See the document: http://www.erg.eu/streaming/erg_06_33_remedies_common_position_june_06.pdf?contentId=542920&field=ATTACHED_FILE

documentation for version 9 of the LRIC model. The LRIC model is included in Annex 3 and consists of a separate excel file. Annex 4 presents the results of the national consultation and annex 5 is ESA's comment letter.

13. Chapter 2 gives notice of designation of providers with significant market power on the basis on the market analysis in Annex 1. Chapter 3 provides a brief overview of the regulatory starting point for the choice of remedies, while chapter 4 provides an overview of the current specific obligations in the markets for voice call termination on mobile networks. Chapter 5 gives a description and overview of potential competition problems in the relevant markets. Chapter 6 discusses some general principles for use of remedies, including the possibility of the emergence of sustainable competition in the relevant markets and the requirement that the use of remedies shall be proportionate. Based on the preceding chapters and the appended market analysis, in chapter 7 Nkom discusses the choice of specific obligations. Chapter 8 contains the imposition of specific obligations. Chapter 9 discusses the relationship to the current decisions in the markets for voice call termination on mobile networks. Information about when the decision will enter into force and appeal options are found in chapter 10.

2 Designation of providers with significant market power

14. On the basis of the analysis of markets for voice call termination on mobile networks (Annex 1) and pursuant to section 3-3 of the Electronic Communications Act, the following companies are designated as providers with significant market power in the following respective markets:

- Com4: Voice call termination on Com4's mobile network
- Get: Voice call termination on Get's mobile network
- ICE: Voice call termination on ICE's mobile network
- Lycamobile: Voice call termination on Lycamobile's mobile network
- Phonero: Voice call termination on Phonero's mobile network
- TDC: Voice call termination on TDC's mobile network
- Telenor: Voice call termination on Telenor's mobile network
- Telia: Voice call termination on Telia's mobile network

3 Regulatory basis for the choice of remedies

15. Pursuant to section 3-4, first paragraph, of the Electronic Communications Act, one or more specific obligations in accordance with sections 4-1, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-9a and 4-10 shall be imposed on providers with significant market power. Relevant obligations for the markets for voice call termination on mobile networks are:

- Access obligations, cf. sections 4-1, 4-2, 4-4 and 4-5 of the Electronic Communications Act.
- Obligation of non-discrimination, cf. section 4-7 of the Electronic Communications Act.

- Obligation to publish standard reference offers, cf. section 4-6 of the Electronic Communications Act.
- Obligation of transparency, cf. sections 4-6 and 4-8 of the Electronic Communications Act.
- Obligation of accounting separation, cf. section 4-8 of the Electronic Communications Act.
- Obligations of price controls and cost accounting, cf. section 4-9 of the Electronic Communications Act.

16. Pursuant to section 3-4, second paragraph, of the Electronic Communications Act, obligations may in special cases be imposed beyond what follows from these provisions. In such cases the consultation procedure in section 9-3 of the Electronic Communications Act is to be followed.

17. In its remedies document, Nkom has defined the principles that in general will guide the Authority in its choice of remedies:

Principle 1 Substantiated decisions shall be prepared in accordance with the national regulatory authority's obligations pursuant to the directives.

Principle 2 The interests of consumers shall be protected when replication of infrastructure is not considered feasible.

Principle 3 In markets where Nkom considers it likely that duplication of infrastructure may be attained over time, Nkom will ensure that its use of remedies supports the transition to a market characterised by sustainable competition.

Principle 4 Remedies shall be designed to be incentive compatible.

18. In accordance with the general principles of administrative law and the proportionality principle in European Community law, any obligations Nkom imposes on providers with significant market power shall be appropriate to furthering the purposes of the Electronic Communications Act. At the same time, the obligations must not go further than is necessary for furthering these purposes. The main objectives of the Electronic Communications Act are stated in section 1-1, which reads:

"The purpose of the Act is to secure good, reasonably priced and future-oriented electronic communications services for the users throughout the country through efficient use of society's resources by facilitating sustainable competition, as well as fostering industrial development and innovation."

19. In addition to section 1-1, a special purpose provision has been included in section 3-4, third paragraph. This provision lays down requirements for the use of specific obligations:

"Obligations pursuant to the first and second paragraphs that are imposed in the individual case shall be appropriate to promote sustainable competition as well as facilitate national and international development in the market. The Authority may amend obligations imposed."

20. The European Commission published its recommendation on the regulatory treatment of fixed and mobile termination rates on 7 May 2009¹⁶. ESA published an identical recommendation on 13 April 2011¹⁷. Nkom has largely taken the principles set out in this document into account in its design of the relevant use of remedies¹⁸.

4 Current specific obligations

21. All the providers covered by this decision, except Get and ICE, which are now being subjected to special regulation for the first time, are currently required to comply with specific obligations pursuant to chapter 4 of the Electronic Communications Act.

22. In accordance with Nkom's decision of 13 January 2015, the following specific obligations apply to the regulated providers:

Com4:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to publish its interconnection rates, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

Lycamobile:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to publish its interconnection rates, cf. section 4-6 of the Electronic Communications Act.

¹⁶ The Commission's Recommendation:

http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/article_7/recom_term_rates_en.pdf

¹⁷ ESA's Recommendation: <http://www.eftasurv.int/media/internal-market/ESAs-Recommendation-on-termination-rates.pdf>

¹⁸ However, the Commission has proposed a new set of rules called the European Electronic Communications Code (EECC), which proposes, among other things, a more harmonised method for setting termination charges. Currently, it is not known whether, and if so, when, the Commission will update recommendation on the regulation of termination charges. See <https://ec.europa.eu/digital-single-market/en/news/proposed-directive-establishing-european-electronic-communications-code>

- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

Network Norway:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to publish its interconnection rates, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

Phonero:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to publish its interconnection rates, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

TDC:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to publish its interconnection rates, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

Telenor:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.

- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to formulate and publish a reference offer for interconnection, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

Tele2:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to publish its interconnection rates, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

Telia:

- An obligation to meet any reasonable request for interconnection and to negotiate such agreements without undue delay, cf. sections 4-2 and 4-1 of the Electronic Communications Act.
- An obligation not to discriminate between external providers and to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as its own operations, cf. section 4-7, first and second paragraphs, of the Electronic Communications Act.
- An obligation to formulate and publish a reference offer for interconnection, cf. section 4-6 of the Electronic Communications Act.
- Price cap of NOK 0.065 per minute from 1 January 2017 for termination of voice calls on its own network, calculated on the basis of a weighted average of various price elements, cf. section 4-9 of the Electronic Communications Act.

23. Network Norway and Tele2 left the Norwegian market in 2015 / 2016. Reference is made to the more detailed discussion in section 2.2.5 of the market analysis.

5 Competition problems

5.1 General – competition problems

24. A provider with significant market power would be able to exercise behaviour with the purpose or intention of driving competitors out of the market, preventing potential competitors from entering the market and/or exploiting consumers. Such behaviour is referred to as competition problems.

25. Nkom's remedies document contains a general description of potential competition problems within the relevant markets. Based on the practical experience of the national regulatory authorities in Europe¹⁹, the document identifies 27 standard competition problems.

26. Specific obligations imposed on providers designated as having significant market power must be suitable to remedy actual or potential competition problems in the relevant market. The imposition of specific obligations is not conditional on the abuse of market power actually taking place. It is sufficient that anti-competitive behaviour can potentially arise under given conditions.

27. In the following, competition problems are discussed in connection with the markets for voice call termination on mobile networks. The point of departure for the assessment of competition problems is a "modified greenfield approach", namely a requirement that the relevant market was not subject to ex ante regulation.

5.2 Denial of interconnection

28. In most cases a provider will have an incentive to offer interconnection in the form of termination. The utility value of a network increases with the number of users connected to it, which suggests that mobile operators will want to enter into interconnection agreements with other providers.

29. Providers with few end users will normally consider themselves served by terminating calls from providers with large retail volumes. In this way more people will have the opportunity to contact the smaller provider's end users, making the smaller provider's service more attractive.

30. For larger providers, it may be less important to enter into an agreement on interconnection with small providers. There will be less appreciable loss of quality of their mobile service if the provider's own end users cannot be called by the smaller provider's customers. Such a denial to interconnect could represent a significant competition problem since it will complicate and potentially make it impossible for it or the affected providers to engage in competitive activities. In addition, such behaviour might result in reduced consumer welfare in that the objective of any-to-any communication is not attained.

31. Section 4-2, third paragraph, of the Electronic Communications Act requires providers with significant market power to accommodate reasonable requests for interconnection within those areas in which the provider has significant market power. This provision thus reduces the competition problems related to denial of interconnection, since the obligation to offer voice call termination on their own network is authorised directly in the Electronic Communications Act for all the providers covered by this decision.

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http://www.erg.eu/streaming/erg_06_33_remedies_common_position_june_06.pdf?contentId=542920&field=ATTACHED_FILE

32. The obligation to enter into interconnection agreements under section 4-2, third paragraph, of the Electronic Communications Act includes only interconnection "*within those areas in which the provider has significant market power*". Since Market 2 is limited to voice call termination, the operators may have the opportunity and incentive to receive only voice calls, and not SMS and MMS messages.

33. Moreover, the obligation under section 4-2, third paragraph, for providers with significant market power in Market 2 is limited to agreements on voice call termination on their own network. The providers in question will also have the incentive to refuse to enter into an agreement to purchase termination from other providers.

34. An issue closely related to denial to interconnect is when a provider that does not have an incentive to conclude interconnection agreements makes the conclusion of such agreements difficult by resorting to various forms of delaying tactics. Typically such a practice may be resorted to where there is an obligation to meet reasonable requests for interconnection, but where nothing has been decided on how efficient the negotiations are to be time-wise. Thus, delaying tactics may represent a not-insignificant competition problem, even if the access obligation is enshrined in law.

5.3 Excessive pricing

35. Excessive pricing is the dominant competition problem in the relevant termination markets. The calling party or network owner with which the call originates has no control over which network the called end user is connected to. In reality the network owner who originates the call has no choice but to carry out the call and then pay the price the other network owner requires (the CPP principle²⁰). This creates a monopoly situation for the receiving network owner, where it has the opportunity to demand an excessive price for termination on its network. Providers with significant market power in the markets for voice call termination on mobile networks thus have the incentive and the opportunity to set termination charges that are higher than those they could charge in a market with functioning competition. The incentive to set high termination charges is described further in the section on cross-subsidisation.

36. All the regulated providers are subject to a price cap for termination. From 1 January 2017, the price cap is NOK 0.065 per minute. Historically, all providers of termination on mobile networks have set their price for termination at the same level as the price cap. The affected monopoly markets are characterised by the absence of competition in offering termination on the respective networks, entailing that the providers are not obliged to take their competitors' prices into account. The providers of termination therefore have the opportunity to set prices above the level that would exist in a market with competition.

37. In view of the inherent incentives that exist in monopoly markets, and on the basis of the providers' historical prices, Nkom believes that there is a potential for excessive pricing.

38. In markets where one or more providers set termination charges that are substantially higher than the underlying efficient costs suggest, pricing in the long term could have adverse consequences in terms of resource use and lead to distortion of competition. Excessive pricing of termination results in costs being shifted to other providers and ultimately their end users. High and possibly asymmetric prices among mobile providers can also lead to differentiated rates for calling between different mobile networks. In Nkom's opinion, such a development is unfortunate in terms of transparency in the retail market, and also leads to the transfer of resources between customer groups in different mobile networks.

²⁰ The calling party pays principle is further described in section 2.2.1 of the market analysis (Annex 1).

39. Excessive pricing by the established network owners can also create entry barriers for new and small network owners and Mobile Virtual Network Operators (MVNOs). Such providers usually have little customer volume in an early phase, and the bulk of the calls originated on their networks will be terminated on the networks of the established providers with far larger market shares. If the established providers require termination charges that exceed the efficient level, termination could be very costly for smaller operators that have relatively little internal traffic.

40. Furthermore, excessive pricing of termination on mobile networks will lead to fixed network customers effectively subsidising mobile network customers. This may in turn lead to less fixed to mobile network traffic than is desirable from an economic perspective.

41. On this basis, Nkom believes the operators' opportunity and incentive to charge an excessive price for termination on their mobile networks constitutes a significant competition problem.

5.4 Cross-subsidisation

42. Excessive pricing enables cross-subsidisation in that the termination revenues that exceed the underlying costs can be used to subsidise parts of the operators' own business where earnings do not cover the costs. For example, termination revenues in excess of the underlying costs may be used to finance parts of the market for access and call origination on mobile networks (Market 15), to offer low retail prices in general, to subsidise mobile phones, or in other business areas.

43. The Commission has defined cross-subsidisation as follows²¹:

"[C]ross-subsidisation occurs where the earnings from a given service do not suffice to cover the incremental costs of providing that service and where there is another service or bundle of services the earnings from which exceed the standalone costs. The service for which revenue exceeds stand-alone cost is the source of the cross subsidy and the service in which revenue does not cover the incremental costs is its destination."

44. The definition therefore presupposes that a product is sold at a price less than its incremental costs (avoidable costs), while another product is sold for more than the standalone costs, i.e. more than the costs related to this product in isolation. Nkom finds that cross-subsidisation according to this definition will probably not be a potential competition problem in the relevant wholesale market, whereas overpricing is a more prevalent competition problem.

45. Asymmetric termination charges, i.e. that some providers are allowed to charge higher prices for termination than others, has previously been used as a regulatory tool to lower the entry barriers for new providers and encourage investments in infrastructure. However, this practice can have significant unfortunate consequences if used for too long, and Nkom has therefore been clear that asymmetric regulation would only be used for a limited period of time.

²¹ 2011/354/EC: Commission Decision of 20 March 2001 relating to a proceeding under Article 82 of the EC Treaty (Case COMP/35.141 – Deutsche Post AG) (Text with EEA relevance) (notified under document number C(2001) 728) Official Journal L 125, 05/05/2001 P. 0027 – 0044, para 6

5.5 Price discrimination

46. Providers of termination services may have an incentive to offer better prices to internal or certain external providers. For example, it is conceivable that the providers will offer a more advantageous price to companies in the same group or any prospective partner companies. Similarly, providers that pose a greater potential threat than other operators could conceivably be charged a higher price than those that do not represent as great a threat.

47. Discrimination between providers may result in increased costs for some providers and may ultimately lead to exclusion from the market. Price discrimination among providers may therefore constitute a competition problem.

5.6 Non-price discrimination

48. A provider with significant market power may also have an incentive to discriminate between its own or related activities and the activities of others in connection with factors other than price. This discrimination may apply to the interconnection services that are offered, the quality of technical interfaces, level of service, quality of information and so forth. It is also conceivable that incentives exist for providers to drag out interconnection negotiations and make undue demands linked to interconnection (guarantees, bundling, etc.). Nkom believes such discrimination could distort competition, potentially posing a competition problem in the analysed markets.

6 General – choice of remedies

49. In the following Nkom provides an account of certain issues of a general nature relating to the choice of remedies in the markets for voice call termination on mobile networks.

6.1 Feasibility of replication of infrastructure in the markets for voice call termination on mobile networks

50. According to the presentation of principles 2 and 3 in Nkom's remedies document, key to the choice of remedies will be whether replication of the infrastructure in the relevant market is considered feasible (i.e. whether or not bringing about sustainable infrastructure competition is likely). If the market is covered by principle 2, it will normally be necessary and legitimate to operate with a stricter set of regulatory obligations²².

51. Even though it may be possible to achieve infrastructure-based competition in the mobile market in the form of several competing mobile networks, this will still not remedy the relevant competition problems in the termination markets, cf. chapter 5 of this decision. This is because it is impossible for anyone other than the provider that controls the physical or virtual network to offer termination to end users on that provider's network. Providers are therefore in a monopoly situation with absolute entry barriers in terms of providing termination on other providers' networks. On this basis, Nkom believes that the markets for voice call termination on mobile networks shall in general be regulated by principle 2.

²² See further details about principle 2 in Nkom's remedies document dated 12 June 2009.

52. Based on the above assessment, Nkom has emphasised that imposed obligations shall encourage the efficient use of existing infrastructure, ensure cost coverage for the regulated operators and not dampen the willingness to invest.

6.2 General remarks on proportionality

53. The principle of proportionality is discussed in more detail in Proposition no. 58 (2002–2003) to the Odelsting in the remarks concerning section 3-4 of the Electronic Communications Act.

"The obligations imposed shall be proportionate, non-discriminatory, based on objective and fair criteria and be publicly available. Proportionate means that obligations imposed regarding access or significant market power with appurtenant conditions are suitable to compensate for a lack of sustainable competition and will help to promote consumer interests and, where possible, contribute to national and international development. The burdens of the remedies imposed are to be proportionate with regard to what they seek to achieve. This also permits the authorities to link the obligations to certain areas of the relevant market if appropriate."

54. This principle means that when choosing from several alternatives, all of which could promote the objectives equally effectively, Nkom must choose the least burdensome alternative. The content of the proportionality principle is described in more detail in Nkom's remedies document. This document states that the principle of proportionality implies that measures that are supposed to be suited to realising the objective behind them should not be more burdensome than necessary in the individual case and that the benefits of the intervention are to outweigh the burdens.

55. However, neither the principle of proportionality nor the principle of minimal regulation may be cited in support of the argument that Nkom should not or cannot impose burdensome obligations on providers with significant market power. The core of these principles is that stricter obligations than are necessary shall not be imposed. However, the imposition of burdensome obligations such as price controls may very well be proportionate and necessary in markets where other less burdensome obligations are not deemed to be adequate to fulfil the purpose of regulation.

7 Explanation of the choice of specific obligations

7.1 Interconnection obligations

7.1.1 Background and basis for imposition of obligations

56. End users expect to be able to make calls to other end users regardless of which network they use. Being able to terminate traffic on other providers' networks is crucial for the competitiveness of the mobile and fixed network providers. Interconnection is essential for enabling the end users of different providers to make calls to each other. Termination is thus demanded by operators who want to meet their own end users' demand to be able to converse with users of other mobile networks.

57. Section 5.2 describes the competition problems of denial to interconnect and delaying tactics. Interconnection / access obligations will remedy the identified competition problems.

58. The obligation of providers with significant market power to meet all reasonable requests for interconnection follows from section 4-2, third paragraph, of the Electronic Communications Act. The provision states:

"Within those areas in which the provider has significant market power, the provider shall meet any reasonable request to enter into or amend an agreement on interconnection. In the assessment of whether a request is reasonable, an evaluation shall be undertaken in accordance with section 4-1, second paragraph. A provider with significant market power as regards the products shall document and justify rejection of a request for interconnection."

59. Since all providers that have been evaluated in these markets are regarded as having significant market power in their own termination market, the obligation to offer access to termination of voice calls on their own networks follows directly from the Act. It is thus not necessary to impose interconnection specifically. Termination is included as an element of interconnection. All providers covered by the analysis are therefore required to comply with reasonable requests for termination on their own mobile network.

7.1.2 Content of the obligation

60. A specific request for interconnection shall be complied with to the extent that the request is reasonable. Pursuant to section 4-2, third paragraph, second sentence, of the Electronic Communications Act, the assessment of reasonability shall be the same as pursuant to section 4-1, second paragraph, of the same Act. This provision states:

"In considering whether a request is reasonable an assessment shall be undertaken inter alia of the provider's interest in control over its own infrastructure against the need to give others the access necessary to be able to offer competing services. In the assessment of what is necessary, account shall be taken of whether in the light of market trends it is technically and commercially possible to install or use competing infrastructure. In the assessment of whether a request is reasonable, account shall also be taken of:

- 1. available capacity*
- 2. the service provider's investment and investment risk, including public support and supplement schemes*
- 3. sustainable competition*
- 4. the need to sustain the network's integrity*
- 5. intellectual property rights, and*
- 6. establishment of pan-European services".*

61. To remove some of the basis for possible conflicts related to negotiations on termination, in its decision of 8 May 2007 Nkom made some general assessments of the elements in the assessment of reasonability pursuant to section 4-2, third paragraph, second sentence, of the Electronic Communications Act, cf. section 4-1, second paragraph. It was emphasised that the objective of achieving any-to-any communication normally had to be accorded more weight than the providers' interest in managing their own infrastructure. Nkom believes the discussions in the decision still provide an adequate picture of Nkom's assessment of the elements to be included in the assessment of reasonability. Beyond this, Nkom cites that assessments of reasonability must be made in relation to specific conditions.

62. As stated in the discussion of competition problems in section 4.2, mobile providers can also have an incentive to refuse to enter into interconnection agreements for services outside the obligation in section 4-2, third paragraph, of the Electronic Communications Act. Providers covered by this decision are designated as having significant market power for terminating *voice calls* on their own networks. The obligation under section 4-2, third paragraph, therefore does not apply to receiving SMS and MMS traffic from other providers. Nor does the obligation apply to purchases of termination from other providers. Such forms of denial to interconnect could have an anti-competitive effect and may be in conflict with the objective of any-to-any communication.

63. Section 4-2, second paragraph, of the Electronic Communications Act authorises the imposition of interconnection obligations in specific cases when necessary to ensure any-to-any communication. It follows further that in this case Nkom may impose an obligation to enter into an agreement. This provision does not require the provider on whom obligations are imposed to be designated as having significant market power in the market to which the obligations relate. Nkom has no knowledge of instances of denial to interconnect related to SMS and MMS traffic, but will in specific cases assess the use of section 4-2, second paragraph, of the Electronic Communications Act. The same applies to any cases where a mobile provider refuses to buy termination of voice calls on other networks.

64. In section 5.2 delaying tactics are described as a potential competition problem in the relevant termination markets. Nkom believes the objective of any-to-any communication would not have been adequately safeguarded if the interconnection obligations were not followed up by obligations to complete negotiations within a reasonable time. Article 12, no. 1, second paragraph, of the Access Directive explicitly states that the regulatory authority may impose such obligations on an operator. Nkom believes that section 4-1 of the Electronic Communications Act provides authority to establish rules on the time spent.

65. An obligation to counteract delaying tactics can be formulated in various ways. Nkom believes that a general obligation that termination agreements shall be negotiated without undue delay is appropriate. In order to ensure compliance with the obligation, it should be combined with a requirement to account for time spent related to interconnection negotiations. Such documentation should be made available upon request to a provider who believes delaying tactics have been taking place. To prevent the documentation obligation from being unnecessarily burdensome and give the party who believes they were subjected to delaying tactics the incentive to react relatively quickly, Nkom believes the documentation requirement should be limited in time. A demand for presentation of documentation must therefore be submitted within three months after the relevant negotiations were concluded. A copy of the documentation of the time spent shall in such a case be submitted to Nkom without undue delay.

66. Because functional interconnection is of such great importance to competition in the retail market for mobile telephony, and to ensure any-to-any communication, Nkom believes it is necessary to impose the above-mentioned interconnection obligations on all providers.

67. Nkom believes that the interconnection obligations are suited to compensating for the identified competition problems related to interconnection not addressed by section 4-2, third paragraph, of the Electronic Communications Act and are thus suited to realising the goal of sustainable competition, cf. section 1-1 of the Electronic Communications Act. At the same time, in Nkom's view, the interconnection obligations go no further than necessary.

68. Nkom believes that the public interest in imposing interconnection obligations exceeds the disadvantages this obligation represents for the providers in question. Furthermore, Nkom cannot see that there are less intrusive remedies that can sufficiently counteract the identified competition problems.

Conclusion

69. All the providers that are going to be designated as having significant market power in the market for voice call termination on mobile networks will have an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act. To ensure functional interconnection, Nkom finds it is necessary to impose interconnection obligations in order to safeguard aspects not directly covered by section 4-2, third paragraph, of the Electronic Communications Act. Chapter 8 contains the imposition of interconnection obligations.

7.2 Non-discrimination

70. In section 5.5 and 5.6, Nkom identified discrimination between various internal and/or external providers in terms of price or other conditions as a potential competition problem in the relevant market. The same applies to differences in termination rates for on-net and off-net calls.

71. Section 4-7 of the Electronic Communications Act authorises the imposition of the obligation of non-discrimination. The first and second paragraphs of the provision read as follows:

"The Authority may direct a provider with significant market power to offer interconnection and access to external providers on non-discriminatory terms.

The Authority may direct a provider with significant market power to offer interconnection and access to other providers on the same or equivalent terms and of the same or equivalent quality as provided for internal operations, subsidiaries or partnerships."

72. An obligation of non-discrimination may be imposed in two contexts. Under the first paragraph, the Authority may order a provider with significant market power not to discriminate between external providers. The provision's second paragraph empowers the Authority to order the provider with significant market power to offer the same or equivalent quality and terms to competing providers as to its own or associated operations.

73. An obligation of non-discrimination could reduce the ability to exercise exclusionary behaviour and thus prevent the transfer of market power from the wholesale to the retail market. Exclusionary behaviour refers to conduct which has the purpose or effect of preventing access and/or excluding competitors from markets by operating with prices and/or access conditions that favour their own operations. Methods to increase competitors' costs and thereby reduce the demand for competitors' products may be examples of such behaviour.

74. Price discrimination will largely be remedied through the price obligations imposed in chapter 8, cf. section 7.4. Regulated maximum prices will ensure that the provider cannot demand higher prices than the regulated price for termination on its own network. There will still be opportunity for a certain degree of price discrimination if one or more providers are given lower prices than the regulated maximum price.

75. With regard to any differences in termination charges between on-net and off-net calls, Nkom believes that it would not be appropriate to require the charge for terminating off-net calls to be equal to the implicit internal termination charge for on-net calls. The prerequisites for such discrimination will also be weakened when the prices for off-net calls are set to an efficient level. For this reason Nkom believes the most appropriate and effective instrument for remedying the competition problem is to regulate the off-net price directly. The further

consideration of discriminatory behaviour does not discuss any differences in termination charges for on-net and off-net calls.

76. The main point of an obligation of non-discrimination is that similar situations are to be treated equally with regard to prices, information and other terms, regardless of which provider is involved. Any differences in the terms should therefore be based on objective criteria. The obligation of non-discrimination means that providers are able to compete on equal terms, which will have a positive effect on the competition in the market.

77. In its decision of 13 January 2015, Nkom decided that an obligation of non-discrimination must be imposed on all providers, irrespective of their size. Nkom refers to section 7.2 of the cited decision for the assessments that are upheld also for this decision.

78. In order to be able to offer a competitive service, operators must be able to provide end-to-end connectivity. In practice this means that the operators will be forced to buy termination services from other operators. If any of these favour certain buyers of termination, situations where competition is distorted may therefore arise. As mentioned earlier, the price controls discussed in section 7.4 will to some extent remedy the competition problems related to price discrimination. Providers may still have an incentive to offer more favourable prices and other terms to companies in the same group or to any future partner companies. Such discrimination is not addressed through price regulation. Nkom also believes discrimination related to terms other than price becomes relevant in that price discrimination is largely prevented by the price obligations.

79. On this basis, Nkom finds it necessary to impose an obligation of non-discrimination on all providers of call termination on mobile networks. To be sufficiently effective, Nkom believes that an obligation of non-discrimination in connection with price and other terms must apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's own internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, this does not apply to any differences in termination charges for on-net and off-net calls, cf. the discussion on this topic above.

80. An obligation of non-discrimination implies a continuation of existing obligations for those companies that are subject to regulation. The obligation is new for ICE and Get, as these companies have not previously been subject to regulation. In Nkom's view, this obligation is proportionate. The remedy can be viewed as a best terms doctrine in that the more favourable terms achieved by a provider will also be reflected in the terms offered other providers. In Nkom's opinion, the disadvantages of such a curtailment of providers' scope of action are outweighed by the competition benefits. Moreover, Nkom cannot see that other means will be sufficiently able to remedy the relevant competition problems.

81. Discriminatory terms may reflect abuse of dominance pursuant to section 11 of the Competition Act. For the provision to apply to the discriminatory terms, the competition authorities must designate the relevant provider as dominant in the relevant market. Moreover, it must be established that discrimination has or is likely to produce anti-competitive effects, reducing predictability for the operators. In Nkom's view, the provision's implicit prohibition against discrimination provides insufficient protection against such behaviour. Sector-specific ex-ante obligations will also permit frequent and prompt intervention to a greater degree.

Conclusion

82. All the providers that are going to be designated as having significant market power in the market for voice call termination on mobile networks will have imposed an obligation of non-discrimination in connection with termination on their respective mobile network, cf.

section 4-7, first and second paragraphs, of the Electronic Communications Act. Chapter 8 contains the imposition of non-discrimination obligations.

7.3 Reference offers and publication

83. Pursuant to section 4-6 of the Electronic Communications Act specific obligations can be imposed on providers with significant market power to publish specified information and to prepare and publish standard offers for electronic communications networks and services (reference offers). Such obligations are usually referred to as transparency obligations. Transparency in itself is rarely sufficient for remedying competition problems, but it may improve the efficacy of other measures²³. For example, in connection with access issues, transparency will help simplify and speed up negotiations if the key terms for connection follow a standard reference offer that is publicly available. Reference offers will thus often be cost-saving for the providers and reduce the risk of disputes. An obligation of transparency will also make it easier for other providers and Nkom to monitor compliance with non-discrimination obligations.

84. All the providers of termination are subject to access obligations, see section 7.1 above. This makes it necessary to consider an obligation of transparency in order to streamline the requirement to meet reasonable requests for termination. An obligation of non-discrimination are imposed on all providers. An obligation of transparency could also streamline this obligation and further counter attempts at discriminatory behaviour.

85. One possible downside of transparency is that easily available information on prices may facilitate tacit collusion. Competition will be harmed if competitors adjust their prices to each other rather than fix them on a free basis. However, this issue is not very relevant for the termination markets. In this connection Nkom refers to the fact that the termination markets consist of a limited number of operators whose prices are already transparent. In addition the parties gain knowledge about the other party's termination charges through their interconnection agreements, since the providers depend on such information to be able to invoice one another. The termination rates are also subject to a symmetric price cap, cf. section 7.4. Normally, all the rates are identical to the price cap. Nkom therefore believes that the potential harm of an obligation of transparency will be very limited.

7.3.1 Telenor and Telia

86. In Nkom's decision of 13 January 2015, Telenor and Telia were ordered to prepare a reference offer for interconnection with the company's mobile network. Other providers have in practice largely based their interconnection negotiations on these standard reference offers.

87. Nkom believes that the objective of streamlining interconnection negotiations and obligation of non-discrimination suggest that both Telenor and Telia should still be directed to comply with an obligation of transparency in the form of publication of a reference offer. Publishing standard reference offers on the company's website is deemed to be a satisfactory form of publication.

88. In Nkom's opinion, the reference offer ought to contain relatively detailed provisions on matters of importance to providers that wish to negotiate on interconnection. In light of this, Nkom therefore finds that the agreement must contain all information vital to the service to be provided, including information on:

- the interconnection service being offered,
- general contractual terms and conditions,

²³ There is more information about the correlation between transparency obligations and other obligations in BEREC's remedies document, page 42 ff.

- termination charges,
- price elements and the services the individual price elements cover,
- any discounts and criteria for discounts,
- the methods for calculating any offers without a fixed price,
- geographical supply area,
- any significant capacity limitations on delivery,
- characteristics of a technical and physical nature, including interfaces used at network termination points, as well as the standards that are used,
- points of interconnection,
- agreed quality level, and
- provisions regarding reasonable compensation for failure to meet the agreed quality level.

89. Nkom would particularly emphasise the importance of requiring reasonable compensation for failure to meet agreed quality levels, cf. the Electronic Communications Act, section 4-6, first paragraph, no. 5. Such an obligation must be considered as curbing the incentives to discriminate regarding the quality of the call termination product. Such a requirement will also be in accordance with principle 4 in Nkom's remedies document and is a continuation of a similar obligation laid down in Nkom's decision of 13 January 2015.

90. Changes to a provider's termination product could affect the competitive situation of other providers. In reality, Telenor and Telia have limited opportunities to change the prices of the termination product to the detriment of other providers since said providers are subject to both regulatory price caps and an obligation of non-discrimination. Section 2-4, third paragraph, of the Electronic Communications Act states that end users must be given one month's notice of any changes in the terms and conditions. Providers that purchase termination services from Telenor and Telia must have sufficient time to take into account changes relating to the termination product of these providers in the terms they offer their own end users. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), Nkom therefore finds that Telenor and Telia must be ordered to give notice to other providers of any changes to existing services that are detrimental to the other parties, no later than two months before the change is implemented.

91. Nkom finds that the transparency obligations are proportionate and that the imposed obligations are largely a continuation of the obligations imposed in Nkom's decision of 13 January 2015. The work associated with preparing and publishing standard reference offers has already been done. However, there will be some administrative costs associated with updating the reference offers. These are considered to be relatively limited, so that the competition benefits clearly exceed the disadvantages the requirement may entail for these providers.

92. Nkom believes the provisions of the Competition Act will not be sufficient to safeguard the considerations noted above in favour of transparency obligations. The main reason for this is that the Competition Act will not be able to address the need for predictability to the same degree. With respect to transparency obligations, the intention is in part to facilitate the most efficient negotiations possible on interconnection. Nkom believes in this context that it is crucial that the obligations can be imposed in advance of any negotiations. Since the competition rules assume that the dominant operator must have used its position to the detriment of competition before the authorities can intervene, Nkom finds these rules are less suited to addressing the interests that underlie transparency obligations than ex-ante regulation.

Conclusion

93. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Telenor and Telia to prepare and publish standard reference offers for interconnection on their mobile networks as specified above. Further, pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), Telenor and Telia must give advance notice to other providers of any changes to existing services that are detrimental to the other parties no later than two months before the changes are implemented. The imposition of specific obligations related to reference offers and publication are presented in chapter 8.

7.3.2 Com4, Get, ICE, Lycamobile, Phonero and TDC

94. Com4, Lycamobile, Phonero and TDC were not ordered to prepare and publish a reference offer for interconnection in Nkom's decision of 13 January 2015. Nkom held that such an order would be unnecessary since in practice these operators have used Telenor's and Telia's reference offers as a basis for the interconnection negotiations. Since the interconnection agreements currently in effect between these providers have been reached by negotiations and few amendments are made, it does not seem to be particularly necessary for these providers to prepare and publish their own complete reference offers. In Nkom's view, it will be sufficient that Com4, Get, ICE, Lycamobile, Phonero and TDC publish their termination rates.

95. The price controls discussed in section 7.4 pertaining to Com4, Get, ICE, Lycamobile, Phonero and TDC will limit the ability of these providers to make substantial changes in the prices they charge for termination. However, Nkom believes that importance must be attached to issues related to factors other than price and the objective of predictability for other providers. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), Nkom therefore finds that Com4, Get, ICE, Lycamobile, Phonero and TDC must be ordered to give notice to other providers of any changes to existing services that are detrimental to the other parties, no later than two months before the change is implemented.

96. Nkom finds that the transparency obligations being imposed on Com4, Get, ICE, Lycamobile, Phonero and TDC are proportionate and well suited to streamlining the imposed access obligations. These obligations constitute a continuation of existing obligations for the companies covered by the decision of 13 January 2015. The obligations are new for Get and ICE, which are now having specific obligations imposed for the first time. Nkom cannot see that an obligation as outlined above will cause the companies to incur appreciable costs or inconveniences.

97. Furthermore, Nkom believes, as mentioned above, that the provisions of the Competition Act will not be sufficient to safeguard the considerations behind the transparency obligations. In this context reference is made to NPT's assessments in section 7.3.1.

Conclusion

98. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, Com4, Get, ICE, Lycamobile, Phonero and TDC must publish their termination rates. Further, pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), Com4, Get, ICE, Lycamobile, Phonero and TDC must give advance notice to other providers of any changes to existing services that are detrimental to the other parties no later than two months before the changes are implemented. Notice is given of imposition of specific obligations related to publication in chapter 8.

7.4 Price controls

99. In chapter 5, Nkom has shown that excessive pricing and cross-subsidisation are potential competition problems in the relevant market.

100. Pursuant to section 4-9 of the Electronic Communications Act, the authorities may impose price obligations for access and interconnection on providers with significant market power in cases where the provider can exploit its market power to the detriment of the end users by sustaining a disproportionately high price level, or by subjecting competing providers to price squeezes.

101. Section 4-9 of the Electronic Communications Act sets no requirement that the regulated provider actually does charge a disproportionately high price: It is sufficient that the provider with significant market power might potentially do so in the future. As stated in the description of the competition problem of excessive pricing, Nkom believes the terms for imposing price controls in the relevant termination markets have been met.

102. In Nkom's view, remedies such as reference offers, publication and non-discrimination are insufficiently able to counteract competition problems related to excessive pricing. Price controls are therefore necessary to remedy the competition problem of excessive pricing and thus prevent the unfortunate consequences mentioned in chapter 5.

7.4.1 Starting point for price controls

103. Nkom and the Ministry of Transport and Communication's previous decisions, the Commission²⁴ and ESA's recommendations and the general considerations of harmonisation provide guidelines for the design of the obligations relating to price control. Reference is made to section 7.4.1 of the decision of 13 January 2015 for a thorough review of past decisions, the recommendations from the Commission and ESA and also the economic assessments that led to the maximum price for termination of voice calls being based on pure LRIC. In addition, the above-mentioned decision provided an account of the consequences of introducing pure LRIC in Norway. Nkom finds that the assessments that have been done in this context are still relevant and is therefore going to continue to use pure LRIC as the basis for future price controls. See section 7.4.1.1 for an account of harmonisation of price levels and methods.

104. It is also pertinent to point out that the new recommendation on price regulation of voice call termination was originally expected to be communicated by the Commission during the course of 2016. However, this process has been postponed, and a new recommendation is not expected until the second half of 2017 at the earliest. At the same time, the Commission has proposed to update the electronic communications regulations²⁵, in connection with which it has proposed a concrete harmonised price level for termination of voice calls. However, the final text and schedule have not yet been clarified, meaning there is uncertainty about the future framework for price controls.

7.4.1.1 Harmonisation in Europe

105. Termination charges in the EEA countries have been significantly reduced in recent years and are expected to fall further in the future.

106. BEREC regularly compares the rates²⁶ in European countries. The comparison from January 2017 shows that the weighted average of termination charges in Europe is 0.969

²⁴ Cf. footnotes 13, 14 and 15.

²⁵ European Electronic Communications Code (EECC): <https://ec.europa.eu/digital-single-market/en/news/proposed-directive-establishing-european-electronic-communications-code>

²⁶ http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/7095-termination-rates-at-european-level-january-2017

eurocent per minute (about NOK 0.088 using the exchange rate from January 2017²⁷), cf. the figure below. At the same time, the average rate in Norway was 0.719 eurocent (the regulated price was NOK 0.065).

MTR per country – January 2017 (eurocents per minute of service)

Figure 2 MTRs

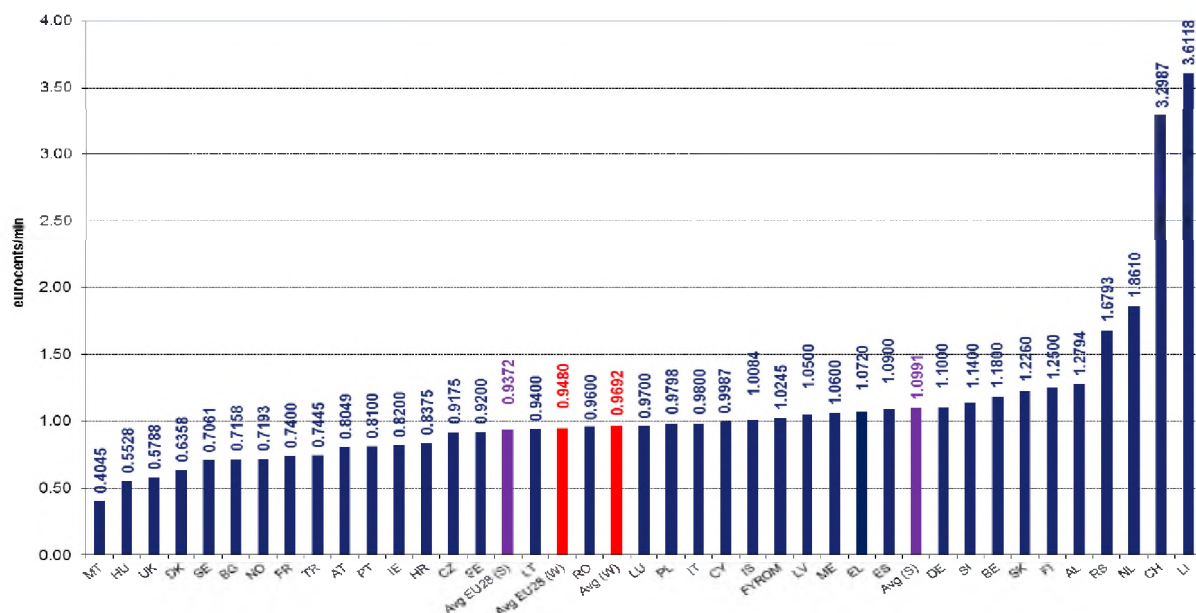


Figure 1: Average termination rates in European countries at January 2017, in eurocents per minute. Source: BEREC.

107. On the basis of gathered information, Cullen International²⁸ has compiled the overview below, showing both the price levels and which countries have adopted termination rates based on pure LRIC. The overview shows that the average price level for countries that have introduced termination rates based on pure LRIC is 0.84 eurocents per minute.

²⁷ <http://www.norges-bank.no/statistikk/valutakurser/>

²⁸ <http://www.cullen-international.com/> The overview was updated on 1 July 2017.

The simple arithmetic average of the lowest peak MTR in the 28 EU member states is 0.87 €cents/min (does not include Switzerland) (Cullen International)
For those member states that apply pure LRIC MTRs, the average is 0.84 €cents/min

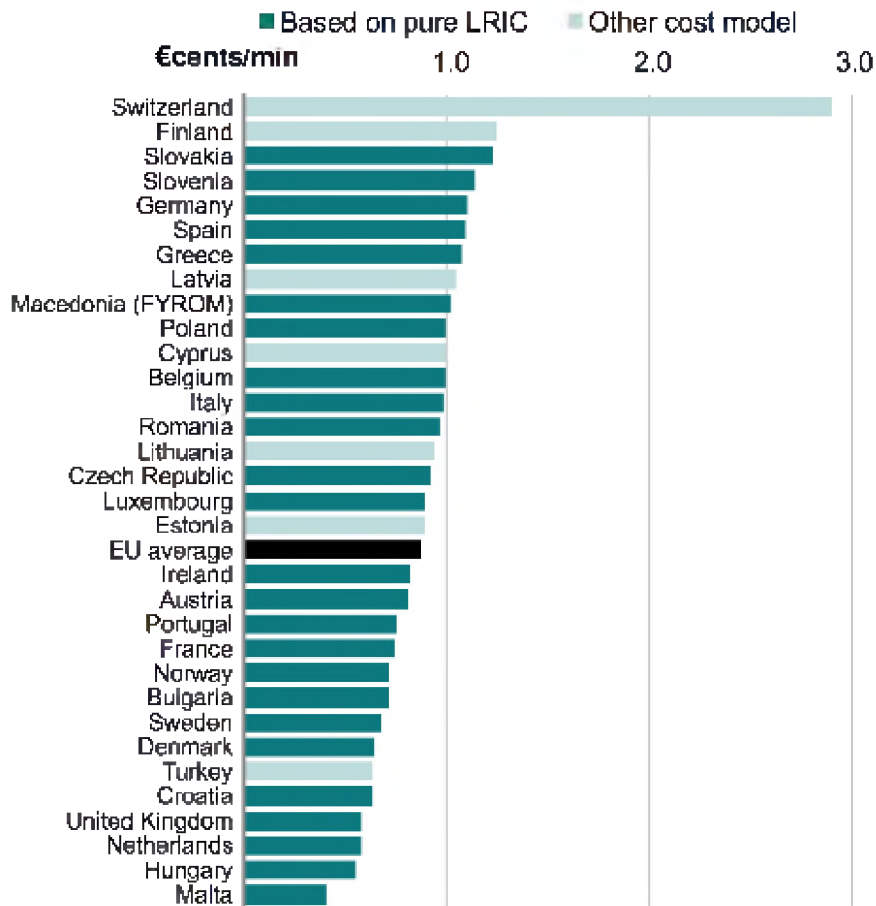


Figure 2: Overview of prices and the countries that use pure LRIC. Source: Cullen International 2017

108. In line with the determination of termination rates in the EEA countries on the basis of the Recommendation, the prices show a downward trend, at the same time as the prices are now largely symmetric within the individual countries. In this context it is also relevant to point out that in those cases where the national regulatory authorities have announced price controls that deviate from the Recommendation, the Commission has lodged formal objections²⁹. As a general rule, BEREC has agreed with the Commission's objections if the termination rates have been determined using a cost basis other than pure LRIC. Normally, the objections result in the national regulatory authorities adapting their decisions to comply with the Commission's guidelines.

109. The above shows that termination rates are decreasing and are increasingly being based on pure LRIC. At the same time, however, there are still relatively large variations in the price levels between the various European countries, meaning that the goal of a harmonised price level cannot yet be said to have been reached.

²⁹ Articles 7 and 7a of the Framework Directive provide for a harmonisation procedure whereby parts of decisions in Member States must be approved by the Commission.

7.4.2 Calculation of efficient cost

7.4.2.1 Calculation of efficient cost for a generic operator

110. Nkom developed the original LRIC model (version 4) in collaboration with the consulting firm Analysys Mason in 2006. The original model calculated the costs for voice call termination on Telenor and Telia's 2G networks. Nkom used LRIC version 7.1 as the basis for its decision of 27 September 2010. This version calculates the carrier-specific costs for voice call termination on both 2G and 3G networks for real operators and for a hypothetical network operator. In the decision of 13 January 2015, the model was further developed to calculate the costs of voice call termination on the networks of Telenor, Tele2, Telia and a generic operator.

111. The operator-specific LRIC models calculate the costs from a bottom-up perspective and therefore use relevant price information from the operators. The bottom-up calculations are calibrated against accounting information provided by the operators (top-down), thereby ensuring a hybrid perspective.

112. The modelling of a generic operator was based on data derived from information provided by existing operators. The generic operator is not identical to any of the existing operators; rather the model indicates the costs for a hypothetical operator that has a business that is representative of the operators in the Norwegian market. In Nkom's opinion, the way in which the generic operator has been modelled satisfies the Commission and ESA's general efficiency requirements, cf. the Recommendation on termination rates.

113. In Nkom's relatively long experience with cost modelling based on LRIC, Nkom has seen that there are no significant differences in costs among the Norwegian network operators, nor between MVNOs and network operators for that part of the production that MVNOs do themselves. In view of this insight, and based on the recommendation that pricing should be based on the costs of an efficient operator, the relevant decision was based on the costs of the generic operator. Nkom holds that the use of a generic operator will also be the most appropriate starting point for pricing in future.

114. Now that the charges are to be re-evaluated, the LRIC model will also need to be updated. The limited update that has been made in this connection must be seen in light of the uncertainty associated with the forthcoming recommendation on the regulation of termination charges and the forthcoming new European Electronic Communications Code. In December 2016³⁰ the operators agreed that the model updates should be limited. On this basis, Nkom has attached importance to primarily updating the traffic and population data. This means that the presumptions concerning technology, including the assumption that an efficient mobile network comprises 2G and 3G technology, remain unchanged.

115. Given the knowledge that the generic operator provides a robust result for costs, Nkom has chosen to limit the update to the LRIC model for a generic operator. The model documentation, which is annexed to this document, provides an in-depth explanation of the assumptions and changes from version 8 of the LRIC model.

116. The LRIC model calculates costs over a 40-year period, and assumptions related to market structure are therefore important. In the current model, it is assumed that an efficient market structure consists of two complete nationwide networks and a third network that has more than 75 per cent population coverage. The Norwegian market is still characterised by the fact that Telenor and Telia have nationwide networks, while a third operator, ICE, is in the process of rolling out its network. Nkom understands that the real market situation may change in the future, but maintains that at present it is most appropriate to keep the current market

³⁰ See: <https://www.nkom.no/marked/markedsregulering-smp/kostnadsmodeller/lric-mobilnett>

structure assumptions. This means that the model assumes a three-party market for the network traffic network based on 2.85 networks.

7.4.2.2 Various methodical approaches in the LRIC model

117. Version 9 of the LRIC model calculates the long-term incremental termination costs for a generic operator based on different methodological approaches, i.e. LRAIC+++ (mark-up for common costs, location costs and business overheads), LRAIC and pure LRIC. Pure LRIC is calculated in line with the Commission and ESA's Recommendation and does not include a mark-up for common costs.

118. In its decision of 13 January 2015, Nkom stated that the mark-up for common costs, handset localisation and business overheads in the termination rate would not be included in the calculation of efficient price. This is upheld in the coming price controls. Nkom's main reason for this is that the operators still have the opportunity to cover these costs in the retail market where prices are not regulated. Nkom stressed that removing these mark-ups from the regulated termination charge will provide efficiency incentives if these costs instead have to be covered in the retail market where there is competition. The operators will then have incentives to reduce common costs to the greatest extent possible in order to be competitive on price to end customers.

119. Furthermore, the Commission and ESA's Recommendation states that only traffic-driven costs should be included. In practice this means that the LRIC model is run twice to calculate LRIC for an operator that offers more services, with and without the termination service included. The difference between these two cost results is pure LRIC or the avoidable cost for termination.

120. By setting termination rates on the basis of pure LRIC using the LRIC model annexed to this decision, the Norwegian termination rates will not be markedly lower than in other countries it is natural to compare Norway with. Thus, there does not appear to be any evidence to suggest that the termination rate will have particular negative consequences.

121. Based on the assessments set out in the decision of 13 January 2015 (cf. the decision of 27 September 2010), and the above considerations, Nkom maintains that pure LRIC is suitable as a method for price controls in Norway.

7.4.3 Special assessments regarding VoLTE

122. In its decision of 13 January 2015, Nkom provided an account of special assessments regarding the use of mobile VoIP. In this context, it was stated that the LRIC model does not explicitly model an LTE network, but that the model does include migration to new technology and allocation of infrastructure costs.

123. The network operators continuously invest in the further roll-out of 4G / LTE networks, and in February 2016, Telenor has introduced voice over LTE (VoLTE)³¹. The reason for the switch to VoLTE is that it provides more efficient resource utilisation of the spectrum and network. In this context, reference is made to the discussion of the products in the market analysis in section 2.2.2.1, which explains why VoLTE is included in the market definition.

124. Prior to updating the LRIC model, Nkom considered a need to update in terms of technological development. In particular, this applies to 4G and prerequisites for the propagation of VoLTE. ESA's recommendation imply, among other things, that cost modelling should be based on efficient technologies to the extent that it can be identified. Nkom has considered whether the technology required for the production of VoLTE is sufficiently developed at the time of modelling. While LTE technology for data production has been

³¹ Cf. InsideTelecom 25 January 2017, <https://www.insidetelecom.no/artikler/600-000-bruker-4g-tale/368105>

established and widely used, the take-up of VoLTE is limited. At time of modelling, the Norwegian operators had operated VoLTE for less than one year.

125. Nkom's established approach to cost modelling is that realistic information should be used to provide robust results; this is valid for both exact data as well as forecasts. The very limited prevalence of VoLTE at the time of modelling indicates that forecasts for further dissemination are subject to great uncertainty. Another element is that the modelled Norwegian network is not very traffic-sensitive. Consequently, the incremental termination cost is relatively small. Nkom believes that a possible inclusion of 4G technology would reduce pure LRIC to a very small extent. LTE is widespread for data traffic, while development in pure LRIC for voice call termination is mainly associated with the reduction in 2G and 3G equipment.

126. Based on the above reviews, Nkom has chosen a limited update of the LRIC model. Hence, the LRIC model is not updated with a view to possible technological developments related to increased distribution of LTE networks and VoLTE, which may be dominant for voice call termination in the future. This choice is based on a weighing up of the guidelines that follow from the above-mentioned recommendations from the Commission and ESA, possible developments and expected new rules in addition to the estimated effect on cost results. Experience from other countries has also been taken into account, including Sweden's updates to the LRIC model, where it was found that a LRIC model with full-scale LTE had a negligible impact on termination costs. Nkom has no reason to believe the outcome would be any different for Norwegian mobile networks. Input from the operators prior to the update of the model has also influenced the scope of Nkom's update of the LRIC model³².

7.4.4 Specific regulatory price caps

127. In the decision 13 January 2015, regulated operators were imposed a price cap for voice call termination of NOK 0.065 per minute. The price cap is based on pure LRIC for the generic operator, as calculated in the LRIC model, version 8.

128. In section 7.4.2.1, Nkom concluded that the LRIC model for the generic operator is still the best basis for setting the efficient price for voice call termination on mobile networks.

129. Nkom finds that the results yielded by the updated model represent the real efficient cost level and ought to be implemented as quickly as possible for all providers. Nkom has assessed the operators' need to adjust to the new rates and whether there is a need for a new glide path, and has concluded that no such needs exist. Version 8 of the LRIC model also calculates future prices, meaning all the operators have been aware of the falling prices. The price reduction in version 9 of the LRIC model, from the current maximum price of NOK 0.065 to NOK 0.054 in 2018 is marginally greater than was suggested by version 8 of the LRIC model. Updating to version 9 results in updated cost calculations. As shown in section 7.4.7 below, nor have any significant consequences been identified that might justify a longer adaptation period.

130. Prices are based on principles for calculating pure LRIC as the efficient cost, cf. section 7.4.4 of the decision dated 13 January 2015. In Nkom's opinion the new price path strikes a good balance between the economic benefits of reduced termination rates for the regulated operators and commercial players' need for predictability.

131. In light of this background, Nkom gives notice of the following regulatory price caps for Com4, Get, ICE, Lycamobile, Phonero, TDC, Telenor and Telia:

³² Cf. Nkom's letter dated 23 November 2016, see: <https://www.nkom.no/marked/markedsregulering-smp/kostnadsmodeller/lric-mobilnett>

	Current maximum price ³³	From 1 March 2018	From 1 January 2019	From 1 January 2020
All regulated operators	6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 3: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

132. The price cap applies to the termination of voice calls, regardless of whether termination takes place on the GSM, UMTS or LTE network. The rates for termination of voice mail services must not exceed the prices in the table above.

133. The maximum prices are based on the efficient costs for each individual year and do not represent a glide path towards a future efficient price. Nkom therefore finds it appropriate that they be adjusted for inflation. Nkom finds that the maximum prices shall be based on inflation forecasts for the entire regulatory period, as opposed to an ongoing annual inflation-based adjustment. This is because Nkom finds it unlikely that inflation will deviate significantly from the forecasts for the next two to three years, cf. the forecasts in the LRIC model.

134. Many years' experience indicates that all providers base their termination rates on pure per-minute charges. Nkom finds that lowering the price cap for termination will reduce the providers' incentive to introduce other price structures than pure per-minute charges. In Nkom's opinion, it is proportionate to continue the system whereby the only price structure allowed is pure per-minute charges. There is therefore no need to establish a procedure for approving alternative price structures.

135. Nkom assumes that prices will be the same for calls from all external networks in the European Economic Area (EEA). It also follows from the obligation of non-discrimination (cf. section 7.2) that any differences must be justified objectively.

136. Nkom aims to make new decisions before the end of the coming price cap period, probably towards the end of 2020. Until a new decision is made, the termination charge shall not exceed 3.2 øre (NOK 0.032) per minute.

7.4.4.1 Special assessments of regulatory price caps for Get and ICE

137. According to section 7.5 of Nkom's decision of 13 January 2015, if new providers of call termination on mobile networks enter the market, Nkom will assess whether and to what extent the providers should be granted a period of more lenient regulation. In this context, it is relevant to refer to the Commission's recommendation, which in special cases allows national regulatory authorities to permit new providers a transitional period to take into account the cost disadvantage due to scale disadvantages³⁴.

138. Get and ICE have both recently entered the market for voice call termination on mobile networks, and Nkom has therefore undertaken an assessment. Previously, price controls have been arranged such that new entrants were allowed a limited period of asymmetric (i.e. higher) termination charges. This has been used as a tool to promote market entry. The decisions of 27 September 2010 and 13 January 2015 both signal that competition analyses and the need to comply with the ESA Recommendation on termination rates will weigh heavily when assessing asymmetric price controls for new providers.

³³ Current maximum rate for all the providers except Get and ICE, which are being imposed obligations for the first time in this decision.

³⁴ see footnote 13, see Recital no. 17 and Article 10 of the Recommendation.

139. Norway used asymmetric rates as an instrument for a considerably longer period than the other European countries. For reasons of harmonisation, there are special reasons for deviating from the Commission and ESA's recommendation that symmetric termination charges should normally be imposed. Both Get and ICE have established themselves on a commercial basis in a market with many players and have not actively applied for special exemption from market regulation. Termination charges have been declining steadily, and a further reduction is now imposed. This reduces the costs for all the operators. In Nkom's opinion, therefore, there are no major arguments that indicate that there are special needs in the Norwegian market that would suggest that Get and ICE need more lenient regulation.

140. The corresponding assessments in the decision of 13 January 2015 regarding Com4 thus apply to Get and ICE. Nkom finds that Get and ICE will benefit from lower cost of goods for termination on other operators' mobile networks, while regulation of the price of incoming calls will constitute a corresponding disadvantage. In Nkom's opinion, the benefits of setting efficient termination rates for Get and ICE, based on the method recommended by the Commission and ESA, outweigh the disadvantages that the operators will experience in the transition to lower rates for termination. Nkom has considered the need for separate price regulation for Get and ICE as new providers and has concluded that the price controls that are going to be imposed on the other providers shall also be imposed on Get and ICE.

7.4.5 Calls originating outside the EEA

141. The Commission and ESA's recommendations on the regulation of termination rates have resulted in substantial reductions in the termination charges in the EEA countries in recent years. This means that the Norwegian providers face termination rates that are on roughly the same level as in Norway when they purchase termination on mobile networks in most other EEA countries, cf. figures 1 and 2 in section 7.4.1.1. However, this is not necessarily the case for purchases of termination on mobile networks in countries outside the EEA. Since the providers of mobile termination in Norway will be subject to price controls, which is not normally the case for mobile providers in countries outside the EEA, the Norwegian providers will in many cases have to pay a significantly higher price for termination than they can demand from their counterparts outside the EEA. This may result in substantial asymmetry in the Norwegian providers' disfavour. It might also mean that Norwegian end users will have to pay significantly more for calls to countries outside the EEA than end users in these countries have to pay for equivalent calls to Norway.

142. Nkom made a thorough assessment of the regulatory price caps in the decision of 13 January 2015 and concluded that limiting the scope of the regulatory price caps was proportionate. The assessments set forth in section 7.4.7 of the aforementioned decision are still largely applicable.

143. Corresponding skews in prices on calls originating within and outside the EEA are found in the other EEA countries, and more and more countries have therefore assumed that price controls should be limited to calls originating in EEA countries. The following overview shows which countries have introduced such limitations.

More countries are now applying regulated MTRs only to traffic originating within EU/EEA (Cullen International)

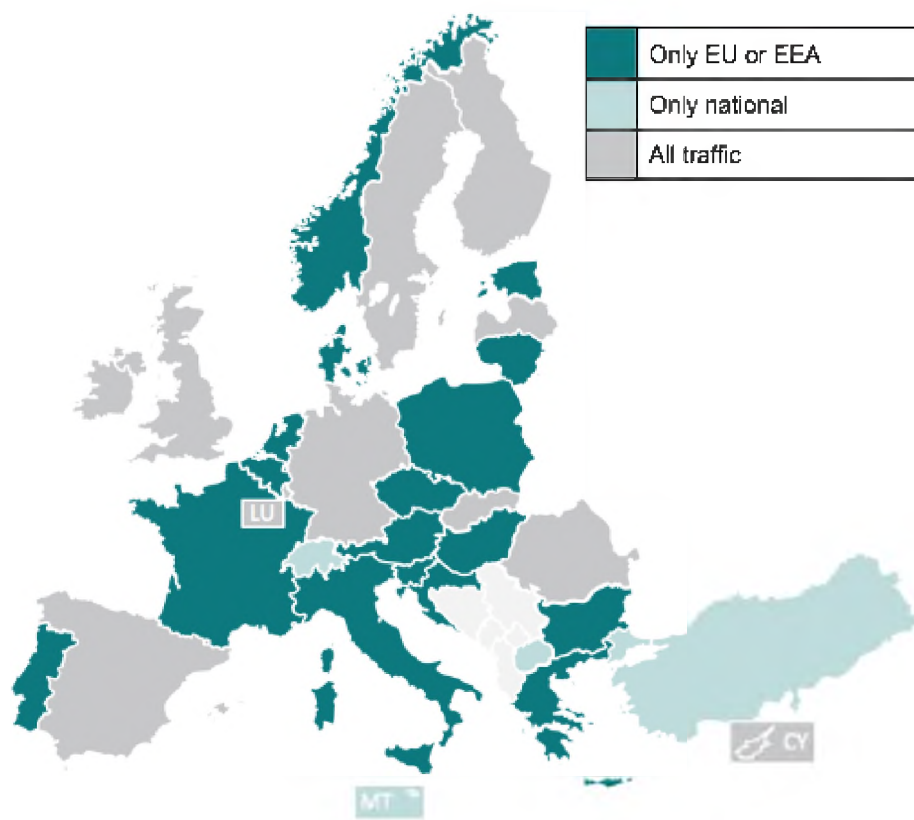


Figure 3: Overview of possible limitations in the scope of maximum price controls, July 2017.

Source: Cullen International 2017

144. In the period following the decision of 13 January 2015, BEREC has continued its work on differential regulatory treatment of voice call termination, depending on the country of origin. BEREC has published an overview of how the problem is addressed in the various countries and has also looked at the effects on cross-border traffic³⁵. BEREC has not provided any specific recommendations in this area, but has outlined some possible methods to avoid imbalances. One option is to include in the market definition calls that are originated outside and terminated within the EEA, but not to impose price controls on these calls. Nkom chose this method in the above-mentioned decision and finds it appropriate to continue to use it in future.

145. Nkom believes that regulatory price caps in Norway can help pave the way for low end-user prices for calls to Norway. However, calls originating outside the EEA will not contribute to increased consumer welfare for Norwegian or EEA citizens. Price controls can also lead to providers outside the EEA gaining a significant advantage over Norwegian providers. This factor in itself weighs in favour of limiting the scope of the price controls. Furthermore, Nkom believes that a delimitation of the price controls would provide Norwegian operators with increased bargaining power vis-à-vis operators outside the EEA. In the long run, this might

³⁵ http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/6483-overview-of-the-regulatory-treatments-of-termination-rates-for-voice-calls-originated-outside-the-eea-and-their-impacts-on-cross-border-traffic-and-settlements (6 October 2016) and http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/

lead to lower termination rates outside the EEA and further contribute to lower retail prices for calls to these countries for Norwegian end users.

146. In Nkom's view, none of the objectives behind the European framework for electronic communications will be jeopardised by limiting the scope of the regulatory price caps. The objective of low, harmonised prices in the EEA has also been followed up in the work on a harmonised regime for international roaming, in order to reduce barriers to communication when end users visit other European countries.

147. Limiting the regulation of termination rates to apply only to calls that are originated within the EEA does not, in Nkom's opinion, entail any material risk that the price level will be set disproportionately high or that prices will be squeezed by Norwegian operators to the detriment of consumer welfare.

148. On the basis of the above, Nkom has concluded that the regulatory price caps shall be restricted to apply only to termination of calls originated in the EEA.

7.4.6 Interconnection charges (traffic capacity, etc.)

149. In principle, charges for interconnection (traffic capacity, etc.) are set according to commercial negotiations between the parties. The providers covered by this decision have both the incentive and the opportunity to charge excessive prices for these types of products. Nkom sees a need for regulation of these prices and is therefore imposing an obligation on Com4, Get, ICE, Lycamobile, Phonero, TDC, Telenor and Telia to have reasonable prices for interconnection.

150. What can be regarded as a reasonable price will have to be decided on a case-by-case basis. If necessary – for instance if cases arise in the future where negotiations are unsuccessful or Nkom receives complaints – Nkom will assess whether a specific price is reasonable. Actual costs related to interconnection will be key in such an assessment.

7.4.7 Expected consequences of the price controls in more detail

151. In this section, an assessment is made of the combined consequences for existing providers, new providers and end users in the mobile and fixed telephony market.

152. An assessment of the financial consequences for providers and end users must be based on certain preconditions. Nkom has based the following calculations on the traffic pattern for 2016 and the real price reduction being imposed on the providers.

7.4.7.1 Expected consequences for existing providers

153. The decision entails a gradual reduction in the termination charge from NOK 0.065 to NOK 0.032 in 2020. A reduction in the termination charge will lead to a reduction in revenue from terminated minutes and a reduction in costs for originated minutes. In general, the number of incoming minutes will exceed the number of outgoing minutes to other mobile networks, as incoming minutes also include traffic from the fixed networks and abroad. Overall, the decline in revenue as a result of the lower termination rates will therefore exceed the decline in costs as a result of the same price reduction.

154. Assuming the new price comes into effect from 1 March 2018 and volumes corresponding to those in 2016, Nkom has calculated the average annual effect for the period 1 March 2018 to 31 December 2020. Average annual decline in revenue from incoming minutes will be NOK 123.7 million for the market as a whole, while the corresponding reduction in costs for originated minutes will be NOK 105.6 million³⁶. The average annual net effect for the providers together will in the order of NOK -18.2 million. This is considered to be a modest

³⁶ Provided that the number of outgoing minutes to other mobile networks accounts for 40 per cent of originated voice traffic to mobile networks.

effect, considering that total revenues from mobile telephony were NOK 17 billion in 2016. The financial impact will vary for the different providers, depending on the ratio between the number of incoming minutes and the number of outgoing minutes to other mobile networks. The net effect for small providers may be assumed to be small because their termination volume is low.

155. Fixed telephony operations will also be affected by the regulation of mobile termination charges in the form of reduced external cost of sales. Nkom assumes that this cost reduction will most likely benefit fixed telephony customers in the form of reduced retail prices for calls from fixed networks to mobile networks, and that the net effect for operators of fixed telephony operations will therefore be almost nil, cf. section 7.4.7.4 on the expected consequences for end users.

156. The Norwegian operators have known about the trend towards lower termination rates for quite some time now, both because it has been a clear, explicit goal in Europe that termination rates are to be reduced, and by virtue of the fact that Nkom has regulated the termination rate for several years. In Nkom's opinion, the benefits of continuing to set efficient termination rates, based on the method recommended by the Commission and ESA, outweigh the disadvantages that the operators will experience in the transition to lower rates for termination.

7.4.7.2 Expected consequences for potential new providers of mobile telephony

157. Obligations of interconnection, non-discrimination, publication and reference offer reduce entry barriers in electronic communications markets by ensuring new providers interconnection without excessively high transaction costs and on non-discriminatory terms in relation to already established providers.

158. The price controls imposed on Com4, Get, ICE, Lycamobile, Phonero, TDC, Telenor and Telia will help lower cost of goods for termination on other operators' mobile networks for new providers in the mobile market. On the other hand, revenues from termination will also be lower, and the net effect for new providers is therefore expected to be small.

7.4.7.3 Expected consequences for the market for access to and call origination in public mobile communications networks (Market 15)

159. In the market for access to and call origination on public mobile communications networks (Market 15), Telenor is required, as a result of Nkom's decision of 1 July 2016, to provide access on non-discriminatory terms and to report accounting separation for the regulated forms of access on a half-yearly basis. Furthermore, Telenor is obliged to offer access at prices that entail that the buyer of access is not subject to a margin squeeze. As a result of lower termination rates for Telenor, this may lead to a reduction in the relevant access charges, cf. the effect that a reduction in termination revenues has on the profit in accounting separation and the margin squeeze tests. In Nkom's opinion, this will help enhance competition and thereby increase consumer welfare.

7.4.7.4 Expected consequences for end users

160. Approximately 14 per cent of the traffic terminated on mobile networks is originated in the fixed network. Lower maximum prices for termination on mobile networks will enable reduced retail prices for calls from fixed networks (including VoIP) to mobile networks. In the past, Telenor has reduced the retail prices for calling from the fixed network to mobile networks as a result of reductions in termination charges, cf. the account of the specific price reductions in section 6.4.9.4 of the decision of 27 December 2010. As assessed in the decision of 13 January 2015, the development of "unlimited usage" products for fixed network customers continues to make it less relevant to undertake a detailed analysis of the trends in

traffic-dependent price reductions. Lower retail prices may lead to more efficient use of the resources in general and thereby increase consumer welfare.

161. It is nevertheless difficult to estimate more specifically what effect a reduction in the termination rates will have on the retail prices for calls between different mobile networks and between fixed and mobile networks. When the revenues from mobile termination are reduced, the regulated providers can choose to rebalance their retail prices to compensate part of the revenue loss on the termination side. Such rebalancing is often referred to as the waterbed effect and is discussed in, for example, the Explanatory Note to the Commission's Recommendation³⁷.

162. However, Nkom holds that a rebalancing of retail prices in which the different types of calls between mobile and fixed networks and between different mobile networks largely reflect underlying costs would yield more economically efficient pricing, even though it would not necessarily entail price reductions for all end users.

7.4.7.5 Overall assessment of expected consequences for end users

163. In this decision, Nkom has balanced the various constraints that follow from the Commission and ESA's recommendations and previous Norwegian decisions. Nkom therefore believes that regulation facilitates sustainable competition, which in turn can ensure good services for end users in terms of service quality, innovation and prices for mobile services.

164. On the basis of the above, Nkom concludes that the expected consequences of regulation are in accordance with both the objective behind the regulation of Market 2 (i.e. principle 2 that efficient use of resources and interests of consumers shall be protected when replication of infrastructure is not considered feasible), and with the overall objective of sustainable competition in the mobile market.

7.5 Regulation of new providers

165. In the event that new providers of call termination on mobile networks enter the market, Nkom will have to consider whether and to what extent the provider shall be granted a period of more lenient regulation. However, in the decision of 13 January 2015 Nkom stated that it is unlikely that any future newcomers will be granted such a period. Nkom's view on this matter has not changed.

7.6 Assessment of the overall effect of the specific obligations

166. As part of the proportionality assessments, Nkom shall assess the overall effect of the specific commitments imposed on providers with significant market power.

7.6.1 Telenor and Telia

167. Telenor and Telia are imposed similar obligations as in the decision of 13 January 2015. Price controls are continued on the basis of pure LRIC, and at a predictably lower level.

168. The obligations being imposed on Telenor and Telia could, in Nkom's view, represent a relatively heavy regulatory burden in the aggregate. Nevertheless, Nkom believes that it will be proportionate to impose all of these obligations. Telenor is the largest provider of termination followed by Telia. To prevent exploitation of market power and to facilitate efficient use of existing resources, including ensuring any-to-any communication, efficient interconnection

³⁷ For the Explanatory Note to the Commission's Recommendation, see: http://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2009/sec_2009_0600_en.pdf

negotiations and efficient pricing, Nkom believes that all of the proposed obligations must be put into effect. As long as there are no alternative forms of regulation better suited to producing a satisfactory outcome, the fact that the overall effect will be relatively burdensome cannot be accorded decisive weight. Nkom has not been able to identify such conditions and thus believes that the overall effect of the remedies cannot be considered disproportionate.

7.6.2 Com4, Get, ICE, Lycamobile, Phonero and TDC

169. Get and ICE are having obligations imposed for the first time; and the obligations are similar to those imposed on the other MVNOs in the market. Similar obligations as in the decision of 13 January 2015 are being imposed on Com4, Lycamobile, Phonero and TDC .

170. The obligations imposed on Com4, Lycamobile, Phonero and TDC are identical to the current obligations, apart from the price controls, which are continued on the basis of pure LRIC, and at a predictably lower level. Get and ICE, which are being regulated for the first time, will have several obligations imposed. Even so, Nkom believes it will be proportionate to impose all of these obligations to ensure the efficient use of resources and prevent undesirable distortion of competition over time. As long as there are no alternative forms of regulation better suited to producing a satisfactory outcome, the fact that the overall effect will be relatively burdensome cannot be accorded decisive weight. Nkom has not been able to identify such conditions and thus believes that the overall effect of the remedies cannot be considered disproportionate.

8 Imposition of specific obligations

171. Against the backdrop of the review above, Nkom has concluded that providers with significant market power in the markets for voice call termination on mobile networks should be subject to several specific obligations. This chapter specifies the content of these obligations.

8.1 Com4 AS

172. Nkom imposes the following specific obligations in the market for voice call termination on Com4 AS's mobile network:

8.1.1 Interconnection

173. Since Com4 AS has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

174. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is imposed on Com4 AS to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, Com4 AS is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

175. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the

basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.1.2 Non-discrimination

176. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on Com4 AS's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

177. The obligation of non-discrimination does not prevent Com4 AS from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.1.4 below.

8.1.3 Publication

178. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Com4 AS to publish its prices for termination on mobile networks, cf. chapter 7.3. Publishing on the company's own website is regarded as a satisfactory form of publication. Standard rates and any discounts with related criteria shall be stated.

179. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on Com4 AS to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.1.4 Price controls

180. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on Com4 AS to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current maximum price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 4: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

181. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to Com4 AS's mobile network.

182. The maximum prices take expected inflation into account, cf. section 7.4.4.

183. The maximum prices do not apply to calls originated in countries outside the EEA.

184. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

185. Pursuant to section 4-9 of the Electronic Communications Act, Com4 AS is ordered to have reasonable prices for interconnection to mobile networks.

8.2 Get AS

186. Nkom imposes the following specific obligations in the market for voice call termination on Get AS's mobile network:

8.2.1 Interconnection

187. Since Get AS has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

188. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is imposed on Get AS to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, Get AS is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

189. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.2.2 Non-discrimination

190. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on Get AS's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

191. The obligation of non-discrimination does not prevent Get AS from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.2.4 below.

8.2.3 Publication

192. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Get AS to publish its prices for termination on mobile networks, cf. chapter 7.3. Publishing on the company's own website is regarded as a satisfactory form of publication. Standard rates and any discounts with related criteria shall be stated.

193. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on Get AS to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.2.4 Price controls

194. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on Get AS to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current termination price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 5: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

195. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to Get AS's mobile network.

196. The maximum prices take expected inflation into account, cf. section 7.4.4.

197. The maximum prices do not apply to calls originated in countries outside the EEA.

198. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

199. Pursuant to section 4-9 of the Electronic Communications Act, Get AS is ordered to have reasonable prices for interconnection to mobile networks.

8.3 ICE Communication Norge AS

200. Nkom imposes the following specific obligations in the market for voice call termination on ICE Communication Norge AS's mobile network:

8.3.1 Interconnection

201. Since ICE Communications Norge AS has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

202. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is being imposed on ICE Communications Norge AS to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, ICE Communications Norge AS is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

203. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.3.2 Non-discrimination

204. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on ICE Communications Norge AS's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act,

section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

205. The obligation of non-discrimination does not prevent ICE Communications Norge AS from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.3.4 below.

8.3.3 Publication

206. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on ICE Communications Norge AS to publish its prices for termination on mobile networks, cf. chapter 7.3. Publishing on the company's own website is regarded as a satisfactory form of publication. Standard rates and any discounts with related criteria shall be stated.

207. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on ICE Communications Norge AS to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.3.4 Price controls

208. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on ICE Communications Norge AS to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current termination price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 6: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

209. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to ICE Communications Norge AS's mobile network.

210. The maximum prices take expected inflation into account, cf. section 7.4.4.

211. The maximum prices do not apply to calls originated in countries outside the EEA.

212. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

213. Pursuant to section 4-9 of the Electronic Communications Act, ICE Communications Norge AS is ordered to have reasonable prices for interconnection to mobile networks.

8.4 Lycamobile Norway Ltd

214. Nkom imposes the following specific obligations in the market for voice call termination on Lycamobile Norway Ltd's virtual mobile network:

8.4.1 Interconnection

215. Since Lycamobile Norway Ltd has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

216. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is imposed on Lycamobile Norway Ltd to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, Lycamobile Norway Ltd. is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

217. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.4.2 Non-discrimination

218. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on Lycamobile Norway Ltd's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

219. The obligation of non-discrimination does not prevent Lycamobile Norway Ltd from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.4.4 below.

8.4.3 Publication

220. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Lycamobile Norway Ltd to publish its prices for termination on mobile networks, cf. chapter 7.3. Publishing on the company's own website is regarded as a satisfactory form of publication. Standard rates and any discounts with related criteria shall be stated.

221. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on Lycamobile Norway Ltd to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.4.4 Price controls

222. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on Lycamobile Norway Ltd to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current maximum price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 7: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

223. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to Lycamobile Norway Ltd's mobile network.

224. The maximum prices take expected inflation into account, cf. section 7.4.4.

225. The maximum prices do not apply to calls originated in countries outside the EEA.

226. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

227. Pursuant to section 4-9 of the Electronic Communications Act, Lycamobile Norway Ltd is ordered to have reasonable prices for interconnection to mobile networks.

8.5 Phonero AS³⁸

228. Nkom imposes the following specific obligations in the market for voice call termination on Phonero AS's mobile network:

8.5.1 Interconnection

229. Since Phonero AS has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

230. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is imposed on Phonero AS to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, Phonero AS is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

231. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.5.2 Non-discrimination

232. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on Phonero AS's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply

³⁸ On 7 April 2017, the Norwegian Competition Authority decided to authorise Telia Company AB's acquisition of Phonero AS. In practice, the duties imposed on Phonero will be taken over by Telia Norge AS if the companies merge.

both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

233. The obligation of non-discrimination does not prevent Phonero AS from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.5.4 below.

8.5.3 Publication

234. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Phonero AS to publish its prices for termination on mobile networks, cf. chapter 7.3. Publishing on the company's own website is regarded as a satisfactory form of publication. Standard rates and any discounts with related criteria shall be stated.

235. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on Phonero AS to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.5.4 Price controls

236. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on Phonero AS to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current maximum price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 8: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

237. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to Phonero AS's mobile network.

238. The maximum prices take expected inflation into account, cf. section 7.4.4.

239. The maximum prices do not apply to calls originated in countries outside the EEA.

240. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

241. Pursuant to section 4-9 of the Electronic Communications Act, Phonero AS is ordered to have reasonable prices for interconnection to mobile networks.

8.6 TDC AS

242. Nkom imposes the following specific obligations in the market for voice call termination on TDC AS's mobile network:

8.6.1 Interconnection

243. Since TDC AS has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

244. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is imposed on TDC AS to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, TDC AS is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

245. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.6.2 Non-discrimination

246. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on TDC AS's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

247. The obligation of non-discrimination does not prevent TDC AS from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.6.4 below.

8.6.3 Publication

248. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on TDC AS to publish its prices for termination on mobile networks, cf. chapter 7.3. Publishing on the company's own website is regarded as a satisfactory form of publication. Standard rates and any discounts with related criteria shall be stated.

249. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on TDC AS to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.6.4 Price controls

250. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on TDC AS to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current maximum price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 9: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

251. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to TDC AS's mobile network.

252. The maximum prices take expected inflation into account, cf. section 7.4.4.

253. The maximum prices do not apply to calls originated in countries outside the EEA.

254. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

255. Pursuant to section 4-9 of the Electronic Communications Act, TDC AS is ordered to have reasonable prices for interconnection to mobile networks.

8.7 Telenor ASA

256. Nkom imposes the following specific obligations in the market for voice call termination on Telenor ASA's mobile network:

8.7.1 Interconnection

257. Since Telenor ASA has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

258. Pursuant to section 4-1 of the Electronic Communications Act, Nkom is imposing an obligation on Telenor ASA to conclude negotiations on entering into or amending agreements on termination on its mobile network without undue delay, cf. chapter 7.1. At the request of the requesting party, Telenor ASA is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

259. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.7.2 Non-discrimination

260. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on Telenor ASA's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

261. The obligation of non-discrimination does not prevent Telenor ASA from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.7.4 below.

8.7.3 Reference offers and publication

262. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Telenor ASA to prepare and publish a reference offer for interconnection, cf. chapter 7.3. Publishing the reference offer on the company's own website is regarded as a satisfactory means of publication. The reference offer shall be adequately divided into individual elements with appurtenant terms and conditions based on the needs of the market, so that the other party is not forced to accept services, functions or benefits that are not requested. The reference offer shall be kept updated and contain all information vital to the service to be provided, including information on:

- the interconnection service being offered,
- general contractual terms and conditions,
- termination charges,
- price elements and the services the individual price elements cover,
- any discounts and criteria for discounts,
- the methods for calculating any offers without a fixed price,
- geographical supply area,
- any significant capacity limitations on delivery,
- characteristics of a technical and physical nature, including interfaces used at network termination points, as well as the standards that are used,
- points of interconnection,
- agreed quality level, and
- provisions regarding reasonable compensation for failure to meet the agreed quality level.

263. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on Telenor ASA to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.7.4 Price controls

264. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on Telenor ASA to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current maximum price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 10: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

265. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to Telenor ASA's mobile network.

266. The maximum prices take expected inflation into account, cf. section 7.4.4.

267. The maximum prices do not apply to calls originated in countries outside the EEA.

268. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

269. Pursuant to section 4-9 of the Electronic Communications Act, Telenor ASA is ordered to have reasonable prices for interconnection to mobile networks.

8.8 Telia Norge AS

270. Nkom imposes the following specific obligations in the market for voice call termination on Telia Norge AS's mobile network:

8.8.1 Interconnection

271. Since Telia Norge AS has been designated as a provider with significant market power in the market for voice call termination on mobile networks, the company has an obligation to meet all reasonable requests for interconnection, cf. section 4-2, third paragraph, of the Electronic Communications Act.

272. Pursuant to section 4-1 of the Electronic Communications Act, an obligation is imposed on Telia Norge AS to conclude negotiations on entering into or amending agreements on termination on its mobile networks without undue delay, cf. chapter 7.1. At the request of the requesting party, Telia Norge AS is required to document vis-à-vis the party the time spent in connection with the relevant contract negotiations. Nkom shall receive a copy of the relevant documentation. Nevertheless, the documentation obligation does not apply if the request was made later than three months after the relevant negotiations were concluded.

273. If access is denied, the party requesting access shall receive a documented and justified refusal of the request, cf. section 4-2, third paragraph, last sentence, of the Electronic Communications Act. The justification must contain all information necessary to evaluate the basis for the refusal, such as, for example, the reason access is being denied, with the necessary technical documentation.

8.8.2 Non-discrimination

274. Pursuant to section 4-7, first and second paragraphs, of the Electronic Communications Act, Nkom is imposing an obligation of non-discrimination in connection with termination on Telia Norge AS's mobile network, cf. chapter 7.2. The obligation of non-discrimination shall apply both between external operations (Electronic Communications Act, section 4-7, first paragraph) and between a provider's internal operations and external operations (Electronic Communications Act, section 4-7, second paragraph). Nevertheless, the obligation of non-discrimination does not apply to any differences in termination charges for on-net and off-net calls.

275. The obligation of non-discrimination does not prevent Telia Norge AS from demanding different termination charges for calls originated in countries outside the EEA, cf. section 8.8.4 below.

8.8.3 Reference offers and publication

276. Pursuant to section 4-6, third and fourth paragraphs, of the Electronic Communications Act, an obligation is imposed on Telia Norge AS to prepare and publish a reference offer for interconnection, cf. chapter 7.3. Publishing the reference offer on the company's own website is regarded as a satisfactory means of publication. The reference offer shall be adequately divided into individual elements with appurtenant terms and conditions based on the needs of the market, so that the other party is not forced to accept services, functions or benefits that

are not requested. The reference offer shall be kept updated and contain all information vital to the service to be provided, including information on:

- the interconnection service being offered,
- general contractual terms and conditions,
- termination charges,
- price elements and the services the individual price elements cover,
- any discounts and criteria for discounts,
- the methods for calculating any offers without a fixed price,
- geographical supply area,
- any significant capacity limitations on delivery,
- characteristics of a technical and physical nature, including interfaces used at network termination points, as well as the standards that are used,
- points of interconnection,
- agreed quality level, and
- provisions regarding reasonable compensation for failure to meet the agreed quality level.

277. Pursuant to section 4-6, first paragraph, of the Electronic Communications Act (cf. fourth paragraph), an obligation is imposed on Telia Norge AS to give advance notice to other providers of any unfavourable changes to existing interconnection services for mobile telephony no later than two months before they are implemented.

8.8.4 Price controls

278. Pursuant to section 4-9 of the Electronic Communications Act, an obligation is imposed on Telia Norge AS to set charges for voice call termination on mobile networks that do not exceed the amounts in the table below, cf. chapter 7.4.

Current maximum price	From 1 March 2018	From 1 January 2019	From 1 January 2020
6.5 øre	5.4 øre	4.3 øre	3.2 øre

Table 11: Maximum price for voice call termination on mobile networks stated in øre (NOK 0.01) excl. VAT.

279. The maximum prices apply per minute to voice call termination regardless of whether termination takes place on the GSM, UMTS or LTE network, and to the voice mail service linked to Telia Norge AS's mobile network.

280. The maximum prices take expected inflation into account, cf. section 7.4.4.

281. The maximum prices do not apply to calls originated in countries outside the EEA.

282. Nkom may issue new decisions on price controls at the end of the price cap period, or decide to remove the price controls. Until a new decision is made, the price shall not exceed NOK 0.032 per minute.

283. Pursuant to section 4-9 of the Electronic Communications Act, Telia Norge AS is ordered to have reasonable prices for interconnection to mobile networks.

9 Relationship to current decisions

284. The existing obligations, cf. decision 13 January 2015, for Com4, Lycamobile, Network Norway, Phonero, TDC, Tele2, Telenor and Telia in the markets for voice call termination on individual public mobile communications networks (cf. chapter 4) are repealed when the new decision enters into force.

10 Entry into force of the decision, time limit for appeals etc.

285. The decision and the appurtenant obligations in the market for wholesale voice call termination on individual mobile networks shall enter into force immediately.

286. The decision may be appealed within three weeks of the date on which it is received, cf. section 11-6 of the Electronic Communications Act and section 29 of the Public Administration Act. Appeals shall be directed to the Ministry of Transport and Communications but sent to Nkom.

287. Only the Ministry of Transport and Communications may make a decision on deferred implementation of the decision, cf. section 11-6, fourth paragraph of the Electronic Communications Act and section 42 of the Public Administration Act.