Annex 1

Analysis of the wholesale market for leased lines for access (Market 6)

Case 1000199

14 March 2012

Contents

Summary

In the Norwegian Post and Telecommunications Authority's (NPT) decision of 3 May 2007, Telenor ASA (Telenor) was designated a provider with significant market power and directed to meet special obligations in the wholesale markets for leased lines (former Markets 13 and 14). The basis for the Authority's market definitions in market analyses and the decision from 2007 was the two wholesale markets for leased lines which comprised Markets 13 and 14 in the EFTA Surveillance Authority's (ESA) Recommendation on relevant product markets for *ex ante* regulation from 2004. In the Recommendation, the markets were defined as leased lines for access (Market 13) and leased lines for transport (Market 14). Following an assessment of national conditions, Markets 13 and 14 in NPT's decision were defined more precisely as leased lines up to and including 8 Mbit/s and above 8 Mbit/s respectively.

The basis for NPT's revision of the market regulation of the wholesale markets for leased lines is the ESA's current Recommendation on relevant product markets of 5 November 2008. In the revised Recommendation, the wholesale market for leased lines for access, which comprised Market 13 in the previous Recommendation, is continued as Market 6.

This document contains NPT's analysis of Market 6.

Chapter 1 contains a description of the legal framework. Chapter 2 contains a short description of the main development trends in the wholesale markets for leased lines. Chapter 3 contains NPT's definition of the relevant market. The market definition is based on NPT's previous definition. The Authority believes that Market 6 should be defined in the same way as in the analysis of former Market 13 from 2007, with regard to both product market and geographic market, i.e. the wholesale market for leased lines with capacities up to 8 Mbit/s. The market is national.

Chapter 4 gives a brief overview of the products that are marketed in the market. Chapter 5 presents the Authority's analysis of the wholesale market.

In the view of NPT, Telenor still has significant market power. In this relevant market, Telenor had a market share in 2010 of 74%, measured according to turnover based on external sales. At the same time, Ventelo, Telenor's only competitor of importance, had a market share of just 26%.

Various forms of entry barriers exist in this market. In NPT's opinion, it is particularly Telenor's control of a nationwide access network, as well as considerable sunk fixed costs and economies of scale and scope that are serving to strengthen the conclusion that Telenor has significant market power.

Even though technological advances and development of new products may eventually cause changes in the competitive situation, it is NPT's assessment that such developments at the present time indicate that there will be only limited changes in the competitive situation in this market.

1 Introduction

1.1 Background and framework for the analysis

1. The regulatory framework for electronic communication is based on five directives adopted by the European Union (EU).[1] These directives entered into force for Norway on 1 November 2004. The directives have been implemented in Norwegian law through the Electronic Communications Act and appurtenant regulations. These directives have been implemented in Norwegian law through the Act relating to electronic communications (Electronic Communications Act) and associated regulations, including the Regulations of 16 February 2004 on electronic communications networks and services (Ecom Regulations).

2. The framework will provide a basis for harmonisation of the regulation in the EU/EEA area, limit entry barriers and facilitate sustainable competition for the benefit of the users.

3. NPT shall perform market analyses based on the pre-defined markets contained in ESA's Recommendation on relevant markets (the Recommendation).[2] It follows from Norway's obligations under the EEA Agreement that identification of providers with significant market power is to be carried out in accordance with the guidelines and recommendations prepared by ESA under the new framework directive for electronic communication services:

- Guidelines on market analyses and the assessment of significant market power (hereinafter referred to as "the Guidelines")[3]
- Recommendation on relevant markets (hereinafter referred to as "the Recommendation")[4]

4. According to the Guidelines, an assessment of relevant markets and significant market power must be based on a market analysis. The assessment is to accord with competition law methodology. The Guidelines and the Recommendation, together with the provisions of the Act on Electronic Communications, particularly §§ 3-1 to 3-3, will therefore form the legal framework for the market analysis.

5. The Electronic Communications Act's definition of significant market power in Section 3-1 reads:

> *"A provider has significant market power when the provider individually or jointly with others has economic strength in a relevant market affording the provider the power to behave to an appreciable extent independently of competitors, customers and consumers. Significant market power in one market may result in a provider having significant market power in a closely related market."*

[1] 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).
[2] EFTA Surveillance Authority Recommendation 05/11/2008
[3] EFTA Surveillance Authority Guidelines 14/07/2004.
[4] EFTA Surveillance Authority Recommendation 05/11/2008 with the Commission's Explanatory Note.

6. The term significant market power in the Electronic Communications Act is very close to the competition law standard "dominant position" ("dominance").

7. In the document "Methodology for market analysis" (the methodology document) NPT has elaborated on the Guidelines' criteria for market analysis on a number of points. The methodology document is not legally binding, but expresses NPT's understanding of the guidelines to which NPT is obliged to adhere. The market analyses will therefore be undertaken in accordance with the views and assessments expressed in the methodology document. Should there prove to be discrepancies between the methodology document and the Guidelines or the Recommendation, the Guidelines or the Recommendation will take precedence. The document in no sense regulates the Norwegian Competition Authority's assessments in accordance with the Competition Act. The methodology document is updated as the Guidelines and the Recommendation are amended. This analysis is based on the methodology document dated 11 June 2009.

8. The market analysis work may be divided naturally into three phases:

   1. Define relevant markets by defining relevant product markets and defining geographic markets.
   2. Carry out market analyses of each of the relevant markets, with a view to uncovering whether any undertakings have significant market power.
   3. Impose obligations on undertakings designating as having significant market power.

9. This analysis contains NPT's assessments in Phases 1) and 2).

10. The market analysis is an annex to the draft decision in which NPT notifies specific obligations on undertakings considered to have significant market power. Pursuant to Section 3-4 of the Electronic Communications Act and Norway's obligations under the EEA Agreement, NPT is obliged to impose at least one specific obligation on an undertaking with significant market power.

11. The market analyses will be subject to regular review. In markets with frequent and comprehensive changes such reviews will have to be carried out relatively frequently. These market analyses are therefore limited in the extent to which they are forward-looking, cf. Paragraph 20 of the Guidelines. This analysis has a time horizon of two to three years.

1.2 Market definition in previous analysis

12. This is NPT's second analysis of the wholesale market for leased lines for access.

13. The previous analysis conducted on 3 May 2007 was based on the ESA's Recommendation on relevant markets from 2004. In the Recommendation from 2004, the market was characterised as Market 13 and was defined as the wholesale market for leased lines for access.

14. On the basis of assessments of the competitive situation and other specific national circumstances related to the Norwegian market for leased lines, NPT has concluded that the relevant wholesale market for leased lines in Norway shall be defined as follows:

    Market 13: Leased lines with capacities up to and including 8 Mbit/s

15. In the analysis, NPT concluded that Telenor ASA alone has significant market power in the wholesale market for leased lines with capacities up to and including 8 Mbit/s (single market dominance).

16. The relevant geographic market was defined as Norway.

2 History and developments in the market

17. The market for leased lines was liberalised in two stages. With effect from 1 November 1996, the use of existing alternative infrastructure (such as existing networks owned by energy companies and cable TV networks) for competitive services was permitted. On 1 January 1998, the remainder of the telecommunications market was liberalised, a move that meant full liberalisation of the market for leased lines.

18. Total revenues in the wholesale market have been stable in recent years, but revenues from low-capacity leased lines have declined. New services such as IP-VPN have taken over much of the market for traditional leased lines within data communications. At the same time, demand for fibre capacity is increasing, partly as a result of broadband development in both fixed and mobile networks.

19. The biggest operators on the supply side in the retail market for leased lines are Telenor and Ventelo. In addition, a number of smaller operators offer geographically limited services. The operators utilise their own and/or leased infrastructure.

20. Leased lines in the associated retail market are purchased by companies, institutions and public agencies to establish communication between two or more geographically separated points. Examples of major customers in this market are large companies that wish to link geographically separated locations for internal telephony and/or data networks. Other customers are public institutions such as local governments and state institutions.

21. Through its nationwide access and transport network, Telenor is by far the biggest supplier of leased lines at wholesale level.

22. Telenor's network largely consists of fibre optic cables along the main routes in the trunk network and copper in the access network, although many business customers have a direct fibre optic connection. In recent years the copper accesses in many places in the country have become increasingly shorter as the result of increased fibre roll-out. Transmission systems for both copper and fibre cables are used for deliveries of leased lines to internal and external wholesale customers.

23. Telenor's service and node structure is based on the fibre network being used as a carrier of both SDH (Synchronous Digital Hierarchy) and WDM (Wavelength Division Multiplexing), in addition to deliveries of dark fibre. WDM systems offer substantial capacity and are used as the carrier of the SDH network, in addition to direct sales of wavelength (optical channel), while the SDH network is in turn the carrier of the DXX network (digital leased lines up to and including n*2 Mbit/s), as well as being used to supply high-capacity leased lines directly.

24. The major challenger to Telenor at wholesale level in the market for leased lines is Ventelo (formerly BaneTele). Ventelo has inter alia fibre cables along the railway network, and fibre spun along high voltage power lines (taken over from Enitel). Ventelo uses WDM and SDH equipment to offer leased lines and has rolled out a WDM network. On top of this network an SDH network has been built to cover regional and local capacity needs.

25. Ventelo's fibre infrastructure links together most cities in Norway, and covers the biggest Telenor exchanges in these cities. Ventelo's infrastructure does not cover Telenor's smaller local and regional centres. This means that in many cases Ventelo is dependent on

purchasing leased lines in Telenor's network in order to be able to offer end-to-end communication.

26. Another major provider of leased lines at wholesale level is Infiber (formerly Hafslund Fibernett). The company is primarily targeting the leasing of dark fibre. Since Hafslund began its dark fibre initiative in 2004, the company has achieved an important position in this part of the market.

27. Infiber is rolling out its own infrastructure from Larvik around the Oslofjord to Halden. Infiber's customer groups for dark fibre are primarily electronic communications providers and companies that require high transmission capacity.

28. In 2009, a collaboration was started between fibre owners which connects regional fibre routes to a network with national coverage. This joint venture is now called Fiber Norge. It exclusively offers optical channels (wavelength multiplexing) to the business and wholesale markets. The partners in this joint venture include Hafslund Telekom, which is also responsible for operating and supporting the entire network and the optical equipment.

29. Limited alternative physical infrastructure has been established by other, smaller challengers which is used to offer transmission capacity at wholesale level. TDC offers leased lines based on its proprietary fibre network in the business market in many of the largest towns in Southern Norway. However, TDC does not offer leased lines in the wholesale market, only in the retail market. In addition there are some operators with geographically limited fibre networks. The largest of these is Altibox (formerly Lyse Tele) and its regional partners, which in recent years have begun to roll out fibre infrastructure to deliver electronic communications services to the private market. This infrastructure has so far not been used to offer traditional leased lines to any extent in either the wholesale or the retail market. However, it represents potential competition in the leased lines markets.

30. Telenor's prices for leased lines are basically the same in the wholesale and retail markets, although in practice many wholesale customers will enjoy lower prices than most customers in the retail market because they purchase larger volumes, thus providing a basis for higher discounts. Telenor's price structure for leased lines is bifurcated, with one price element for length of leased line and one for each connection. The price of the leased line length element is measured by air line between the line's termination addresses. Connection prices depend on the municipality (connection zone) in which the line terminates. The minimum lease period for lines with capacities of up to and including 2 Mbit/s is in principle three months. For lines with higher capacities, and dark fibre, the minimum lease period is in principle one year. Offers with shorter lease periods can be provided for analogue leased lines and dark fibre upon request.

31. None of the other providers of leased lines operate with publicly available price lists.

32. Purchasers of leased lines at wholesale level consist of providers of electronic communications networks or services that use leased lines as an input in the supply of services to end users or to other providers. Examples of major purchasers of leased lines on the wholesale level are mobile network operators, providers of fixed telephony and data networks and providers of leased lines.

33. During the period 2005 to 2010, total revenues in the wholesale market for leased lines with capacities up to and including 8 Mbit/s, based on external sales, fell by around 36%. It is reasonable to assume that the fall in revenues in this market is due to the fact that many enterprises are replacing "low-capacity leased lines" with "high-capacity leased lines" and that services such as IP-VPN are increasingly being used in place of traditional leased lines.

3 Market definition

3.1 General - Market definition

34. As stated above, NPT must assess whether the markets predefined by ESA suit Norwegian circumstances.

35. A description of the product market will be given and the geographic market defined. The definition of relevant markets must use the same procedure as the market definition within competition law. However, in some cases, markets defined by competition authorities may deviate from markets defined in ESA's Recommendation or by national supervisory authorities in accordance with Article 15 (3) of the Framework Directive[5].

36. A relevant product market is made up of products or services for which adequate substitutes can be found. The starting point for the definition of a relevant product market is an assessment of demand-side substitutability. However, substitutability may also exist on the supply side, and may then be relevant in the definition of the relevant market.

37. Once the relevant product markets are determined, the geographic market is defined. The geographic market may be defined as the area in which the relevant product is offered on approximately similar and sufficiently homogeneous competitive terms.[6] Geographic markets within electronic communication have traditionally been defined based on the relevant network's propagation, and the jurisdiction of the legal regulation of the market.[7]

38. In accordance with Section 1-3 of the Electronic Communications Act, cf. Regulation No 882 of 4 July 2003, the Electronic Communications Act applies to Svalbard, Jan Mayen, the dependencies and Antarctica. However in regard to Svalbard, exceptions have been made for Chapter 3 (significant market power), Chapter 4 (access) and Section 9-3 (consultation procedure). Electronic communications on Jan Mayen, the dependencies and Antarctica are, however, assumed to have very little significance for the market analyses NPT carries out in accordance with the Electronic Communications Act. Further reference to Norway as a local jurisdiction refers to mainland Norway/Norwegian territory.

3.1.1 General comments on the product market

39. Demand-side substitutability exists when two or more products in the market are, in the perception of the end user, mutually exchangeable or substitutable on the basis of characteristics, price and area of utilisation.

40. Supply-side substitutability exists when providers of other (non-substitutable) products, as a response to a marginal price change in the short term, can change their production or distribution and offer substitutable products without incurring significant additional costs or substantial risk.

41. An acknowledged method of analysing substitutability is the so-called "hypothetical monopolist test" (SSNIP test)[8], where one endeavours to find the best-defined market in which a hypothetical monopolist can exercise market power. This test assesses the effect of a small, but significant (in practice 5-10 per cent) and lasting price increase for the relevant

[5] ESA's Guidelines of 14 July 2004, paragraph 26.
[6] Paragraph 57 of the Guidelines.
[7] Paragraph 60 of the Guidelines.
[8] "Small but Significant Non-transitory Increase in Price".

product, based on the assumed price level in a market with effective competition. All other prices are assumed to be unchanged. The effect of the price increase in the relevant market and the overall effect on the producer's revenues are then assessed. Determining whether the price increase will be profitable for the producer is key.

42. The Recommendation does not make use of the SSNIP test an absolute requirement in the market definition. Similar methods may therefore also be used. Regardless of method, the hypothetical assessment should be supplemented by factual information on behaviour on the supply and demand sides to the extent that such information is available. On the demand side, factors such as the end users' access to information, the costs of changing and other lock-in mechanisms should be taken into consideration. On the supply side, account should be taken of the actual scope a provider has to change production as well as any regulatory conditions that prevent rapid market entry by competitors in the market.

3.1.2 General comments on the geographic market

43. NPT can only define regional or national markets. The jurisdiction for defining transnational markets is vested with ESA.

44. It might make sense in the case of some product markets to divide them into geographic markets smaller than the nation-state, since there are local providers of electronic communication services covered by the relevant product market.

45. The European Regulators Group (ERG) published the "Common Position on Geographic Aspects of Market Analysis (definition and remedies)"[9] (ERG CP) in October 2008. Here, the ERG recommends a step-by-step process for geographic definition of the market. The first step in this process is to identify whether it is necessary to undertake a detailed geographic analysis. "Preliminary analysis", paragraph 1, page 2 of ERG CP reads:

> *"Before going into the details of geographic analysis, NRA's should look at a number of criteria which are easily accessible and indicate whether competitive conditions are such that a national approach to market definition, market analysis and the implications of remedies is justified. Indicators pointing in this direction are:*
>
> *- The hypothetical monopolist test suggests that there is sufficient demand- and/or supply-side substitution between different areas.*
> *- Competitive conditions are sufficiently homogenous:*
>
> - *Alternative networks either have small coverage and market shares or have (close to) national coverage with similar prices;*
> - *There is a uniform price of the incumbent operator and similar prices of alternative operators;*
> - *There are no significant geographical differences in product characteristics."*

46. I section 3.2.2, in view of the criteria above, NPT assesses whether a detailed geographic analysis is needed.

[9] http://www.erg.eu.int/doc/publications/erg_08_20_final_cp_geog_aspects_081016.pdf

3.2 Definition of the market

3.2.1 Definition of the product market

47. The ESA's new Recommendation defines a relevant wholesale market for leased lines:

> Market 6. *Leased lines for access (Wholesale terminating segments of leased lines, irrespective of the technology used to provide leased or dedicated capacity.)*

48. According to the European Commission's Explanatory Note of 13 November 2007, the definition of the relevant market will depend on the network topology in each country and will therefore be determined by the relevant NRA.[10]

49. The market for leased lines for transport (formerly Market 14) has been taken out of the Recommendation. NPT has concluded that there is also no longer any basis in Norway for pre-regulating this market. Reference is made to NPT's analysis and draft decision on the withdrawal of specific obligations of 14 March 2012. The assessments below in section 3.2.1.2 concerning the definition of the wholesale markets for leased lines also applies to the delimitation and definition of Market 14. As stated in Chapter 1, NPT will use the Recommendation as a basis for the market analyse that is to be carried out, but will at the same time consider whether national circumstances render it necessary to use a slightly different delimitation compared with the predefined market definition.

50. On this basis, NPT has undertaken an assessment of the delimitation of the predefined product market for leased lines for access at wholesale level.

3.2.1.1 Assessment of the distinction between retail and wholesale markets

51. All markets that are defined in the Recommendation are either a retail market or a wholesale market. This differentiation is regarded as practical for the analyses of the relevant markets.

52. 'End user' means a party that utilises the electronic communication network or service for their own purposes or for lending; cf. § 1-5 no. 13 of the Electronic Communications Act. Thus, the term does not include users who utilise the service as an input in the production of other services; cf. § 1-5 no. 13 of the Electronic Communications Act, cf. no. 12.

53. Similarly, the term 'wholesaler' will generally correspond to the term 'provider' in the Electronic Communications Act; cf. § 1-5 no. 14 of the Electronic Communications Act The term 'provider' covers all undertakings offering access to an electronic communications network or service.

54. In this analysis, NPT defines wholesale customers as providers of an electronic communications network and/or service, where the purchase of leased lines is included as an input in the production of such networks and/or services. 'Other customers' are defined as end users.

55. In NPT's experience, providers of leased lines have a good overview of which customers are wholesale customers and which customers are end users, inter alia because providers often use their own sales channels, agreements and/or price plans for wholesale customers. This

[10] Explanatory note to the Recommendation page 38. http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/sec_2007_1483_2.pdf

means that the division between retail and wholesale customers will be possible to implement in practice.

56. A single legal entity (such as a limited company) can act both as an end user and as a wholesaler, depending on the utilisation of the requested leased lines. NPT does not have an overview of the extent of this or to what degree this may constitute a problem, as it is not taken into account in the reported data. Yet there is nothing to suggest that this is of an extent that creates uncertainty with respect to the conclusions reached on the basis of the market data.

57. On the basis of the above findings, NPT has concluded that the difference between retail and wholesale, as proposed in the Recommendation, will also be practical for the analysis of the relevant leased lines markets.

3.2.1.2 Assessment of the delimitation between Market 6 (formerly Market 13) and the former Market 14

58. In the Recommendation, the wholesale market for leased lines for transport is as mentioned previously no longer defined as a relevant market for ex ante regulation, while leased lines for access are continued as Market 6. However, NPT must perform a so-called three-criteria test before a decision can be reached as to whether the ex ante regulation of former Market 14 should cease. Reference is made to the analysis and draft decision on the withdrawal of specific obligations in former Market 14 of 14 March 2012.

59. In the market analysis of 3 May 2007, NPT gave an assessment of the delimitation between Market 6 (formerly Market 13) and former Market 14 in accordance with the previous Recommendation. NPT concluded that, on the basis of the substitution analysis, the competition situation and the product structure, capacity was the most relevant and appropriate parameter on which to delimit between these markets. The Authority concluded that Market 6 (formerly Market 13) covered leased lines with capacities up to and including 8 Mbit/s, and former Market 14 covered leased lines with capacities over 8 Mbit/s, including dark fibre and optical channels. In this assessment, the Authority placed emphasis on the fact that the limit of 8 Mbit/s represented a natural threshold, given that a substitution assessment on the supply side indicated that it constituted a threshold between capacities which could be realised using copper and capacities which required other underlying infrastructure. Even though NPT wished to establish a technology-neutral definition separating the two wholesale markets, an assessment of the competitive conditions indicated that it made sense to emphasise the capacities that can be produced over copper when the boundary between these two markets is defined.

60. In the new Recommendation, technology-neutrality is noted in the actual definition of the market. Technology-neutrality was also presupposed in the previous recommendation. During the previous round, it became clear that the theoretical definition in the Recommendation did not reflect the products that were being offered and requested in the Norwegian market for leased lines. In Telenor's product portfolio for leased lines, no particular distinction is made between leased lines for access and transport, and although Telenor offers leased lines with different interfaces and technologies, it is not necessarily the case that the different types of leased line are used for access or transport only. The products have not changed significantly since the previous round, and it is as mentioned previously stressed in the previous analysis that NPT wished to establish a technology-neutral definition. In the view of NPT, none of the operators have indicated that NPT should deviate from a technology-neutral definition in these markets either.

61. For the above reasons, NPT finds that there are no grounds for amending the delimitation between Market 6 and former Market 14 solely on the basis of this clarification in the Recommendation.

62. Following input from the operators, NPT finds it appropriate to carry out a new assessment of the delimitation between Market 6 and former Market 14. This assessment also forms the basis for the definition and the delimitation in the analysis and draft decision on the withdrawal of remedies in former Market 14.

63. In meetings with NPT, most operators have stated that they believe that the capacity delimitation with the threshold fixed at 8 Mbit/s in the current decision should be reviewed. Some operators stated that a threshold of 8 Mbit/s now seems low, given that market developments since the current decision was adopted in 2007 suggest ever-increasing demand for higher capacities, including dark fibre (including for what is traditionally termed 'terminating segments of leased lines'). A number of other operators believed that NPT should consider using other parameters (e.g. leased line length) as the main criterion or as a supplement to capacity. For its part, Telenor, which is the regulated operator in accordance with the current decision, believed that the current definition remains the best approach.

64. During the national consultation process, certain operators also stated that the capacity limit should be raised, as it is assumed that higher capacities are now in demand in the market than what was assumed in the previous analysis.

65. NPT finds that the definition based on capacity is unambiguous and familiar to the operators. This applies inter alia to reporting. Any change to this must therefore be based on sound reasons which indicate that other criteria are of greater relevance.

66. In the previous analysis of this market, NPT received input from a number of operators suggesting that the competition situation for short leased line lengths was less satisfactory than that for long line lengths. NPT has not received any signals from the operators to indicate that using length as a parameter for distinguishing between Markets 6 and 14 would be more relevant now than at the time of the previous analysis of these markets. Based on the information that NPT has at its disposal concerning the market and market developments, there is also no evidence to suggest that length would be more appropriate than capacity. Market developments have also shown that competition in the segment for short leased lines has increased compared with the segment for long leased lines.

67. An assessment of whether different capacities fall within a single product market should be based on the consequences that would arise if prices were to be increased by 5-10 percent for each individual capacity class in isolation from 8 Mbit/s to 10 Gbit/s (the SSNIP test). Theoretically, substitutability exists on the demand side if a marginal, but lasting price increase for a particular capacity class would result in customers deciding to purchase a different capacity class as a substitute for the relatively more expensive product. In such a case, customers would perceive the products as being mutually interchangeable, and the two capacities form part of the same relevant product market.

68. In the view of NPT, the price differences between the various capacity classes in Telenor's product portfolio are too great for a 5-10 percent price increase to cause demand to switch to other capacities. If a hypothetical monopolist were for example to increase its prices for 2 Mbit/s, 8 Mbit/s, 16 Mbit/s or 34 Mbit/s leased lines by 5-10 percent, it is unlikely that a customer who purchases leased lines with one of these capacities would consider switching to another capacity. If one considers only the demand side in the markets for leased lines, there is therefore a considerable amount of evidence to suggest that each individual capacity would

constitute a separate product market. Such a product market definition would however not be particularly appropriate and would be difficult to implement in practice.

69. NPT believes that an assessment of supply side substitution gives clearer guidance as regards the capacities that should be included in the relevant product market. An operator that currently does not offer leased lines corresponding to 16 Mbit/s, but which offers all capacities above this would probably also be able to establish itself in the market for 16 Mbit/s as a response to a marginal price increase in this segment relatively easily. If a hypothetical monopolist is unable to increase its prices for 16 Mbit/s leased lines without inviting in competing operators, the circumstances would suggest that this capacity is part of the same market as the higher capacities. NPT believes that it is natural to distinguish between capacities which are possible to realise and which can largely be realised today via copper, and capacities which are largely realised via fibre. For a hypothetical monopolist with the copper network at its disposal, a price increase of 5-10 percent for such capacities would very probably be profitable, as the price level would already be considerably lower than what a competing operator could offer using alternative infrastructure. This is because the copper access network has largely already been written off, and such a hypothetical monopolist could benefit from substantial economies of scope.

70. NPT has obtained additional information from Telenor in order to assess the substitution situation on the supply side in the market. This information indicates that 2 Mbit/s and n*2 Mbit/s leased lines are largely produced on copper. This also applies to leased lines where n is greater than 5, i.e. where n*2 Mbit/s gives a higher capacity than 10 Mbit/s.

71. Telenor uses fibre lines to offer approx. 75 percent of its 10 Mbit/s Ethernet service. The fact that fibre is used for this purpose may indicate that the substitution situation in the market changes around a threshold of 8-10 Mbit/s. When Telenor, which is able to utilise the copper network in order to offer such capacities, decides instead to carry out the investments that are necessary to realise such communication via fibre, this indicates that the threshold for establishing oneself as a provider in the market is lower already around 10 Mbit/s. There is therefore reason to believe that a capacity threshold of 8 Mbit/s reflects the costs associated with production and the circumstances on the supply side in the market for leased lines to a greater extent than a capacity threshold of 16 Mbit/s.

72. Following these assessments, NPT has decided to maintain a capacity threshold of 8 Mbit/s.

73. In summary, NPT cannot see any reasons in favour of departing from the conclusions in the previous analysis. NPT believes that the assessments and conclusions presented in the analysis of 3 May 2007 as regards the threshold between these markets still expresses the Authority's views. On the basis of the above, NPT adopts the same threshold between Market 6 and former Market 14 as in the analysis of 3 May 2007, i.e. after a capacity of 8 Mbit/s. Market 6 thus covers leased lines with capacities up to and including 8 Mbit/s.

3.2.1.3 Delimitation of Market 6 with respect to Markets 4 and 5 and former Market 18

74. In the market analysis of 3 May 2007, assessments were made of the delimitation of Market 6 with respect to Markets 4 and 5 (formerly Markets 11 and 12) and with respect to the broadcasting market (formerly Market 18). The Authority cannot see that any substantial changes have taken place since the previous analysis and refer to the assessment in this analysis.

3.2.2 Definition of the relevant geographic market

75. In the previous market analysis of the wholesale market for leased lines with capacities up to and including 8 Mbit/s from 3 May 2007, NPT concluded that the geographic market should be defined nationally.

76. Assessment of the relevant geographic market will be somewhat different depending on whether the assessment is made ex post or ex ante. A definition of geographic markets *ex ante* must inevitably have a wider basis and a more general approach than is taken with a definition *ex post*. An *ex post* definition is based on an actual event for which the extent of the effects can be charted, whilst the forward-looking assessment must be based on somewhat different circumstances. This will therefore also characterise the scope of the assessment of the relevant geographic market.

77. Based on the criteria in the ERG's "Common Position on Geographic Aspects of Market Analysis" (see section 3.1.2 above), NPT has assessed whether there is a need for a detailed geographic analysis.

78. The geographic market can be defined as the area in which the relevant product is offered on approximately similar and sufficiently homogeneous competitive terms. As mentioned, geographic markets within electronic communications have traditionally been defined based on the relevant network's propagation, and the jurisdiction of the legal regulation of the market.

79. In the wholesale market for leased lines with capacities up to and including 8 Mbit/s, it is in the opinion of NPT unlikely that wholesale customers would change geographic area as a result of a 5-10 percent price increase in the area in which they operate. NPT furthermore believes that it is unlikely that operators from a neighbouring area would start the development of a separate network for leased lines with capacities up to and include 8 Mbit/s as a result of such a price increase. A pure SSNIP test could thus result in a very large number of geographic markets and would therefore not be very practical. It will therefore be necessary to assess whether competitive conditions are sufficiently homogeneous throughout the country.

80. There is little doubt that in theory it is possible to define several separate geographic markets for leased lines with capacities up to and including 8 Mbit/s. The outcome of such an approach however might be that each line is defined as a separate relevant market. A customer that, for instance, requests transmission to a specific address in Oslo will not be able to substitute this with a line to a different address. Clearly, such an approach would result in a complex situation with an infinite number of relevant markets.

81. Telenor's product and price structure for leased lines in the wholesale market applies to the entire country. Insofar as deliveries are based on contract agreements, NPT has not been able to uncover evidence that Telenor is operating with different price structures in different geographic areas. NPT thus has no reason to believe that Telenor to a large degree is differentiating the price on the basis of geographic criteria or the local market situation.

82. Telenor has to date been subject to an obligation to offer leased lines to end users of up to and including 2 Mbit/s on a nationwide basis. This has made it easier for Telenor to supply leased lines with capacities higher than 2 Mbit/s, as the company already has a nationwide presence. In practice, Telenor is therefore able to offer all types leased lines, including transmission capacity up to and including 8 Mbit/s across the country; cf. section 3.2 above. Information that NPT has obtained from the market operators shows that Telenor is seeing relatively less competition for leased lines with capacities up to and including 8 Mbit/s at wholesale level than for higher capacities.

83. There is only one alternative provider of importance in this market, Ventelo. Ventelo largely has a nationwide offer, in the same way as Telenor. Ventelo's price structure also largely corresponds to Telenor's product structure.

84. In addition, there are several operators in the Norwegian market which regularly expand their coverage areas and appear to have clear ambitions to continue expanding. Examples of such operators are Ventelo, Fiber Norge, Fiberselskapet and InFiber.

85. Furthermore, regional operators in several parts of the country have to a greater extent rolled out fibre than was the case at the time of the previous analysis. This applies to both central and less densely populated areas of the country. These operators can potentially offer transmission capacity in their networks, even if this happens to a lesser extent today. It is natural to assume that their presence and their ability to offer this type of product have a disciplining effect on pricing.

86. Based on the above, NPT has concluded that the competitive situation in the wholesale market for leased lines with capacities up to and including 8 Mbit/s is sufficiently homogeneous across the country, and that the most appropriate approach to this market is still to define a national market, i.e. the whole of Norway.

87. Regarding international leased lines, NPT considers that the Norwegian part of international leased lines with capacities up to and including 8 Mbit/s, i.e. from the border to the customer's Norwegian address, is still included in the national market for leased lines with capacities up to and including 8 Mbit/s.

3.3 Conclusion of market definition

88. Based on the assessments in this section, in the view of NPT, the relevant market covers the wholesale sale of leased lines with capacities up to and including 8 Mbit/s.

89. The market is also defined geographically as Norway.

4 Brief overview of products that are marketed in the relevant product market

90. This product market covers all provision of leased lines with capacities up to and including 8 Mbit/s to wholesale customers. 'Leased lines' means an electronic communications service in the form of permanently established capacity for signal transmission as an input for service production or as transmission between different geographic addresses for end-users; cf. § 1-5 no. 6 of the Electronic Communications Act.

91. The market covers leased lines produced on all available technologies and transmission media. As of 31 December 2010, the total market for leased lines with capacities up to and including 8 Mbit/s consisted of just over 16,000 leased lines. See Chapter 3 for other definitions of this relevant product market.

92. Below is a description of selected wholesale products from Telenor and Ventelo (formerly BaneTele) offered in the market for leased lines with capacities up to and including 8 Mbit/s.

- Digital Punkt til Punkt [Digital Point-to-Point] (Telenor): Digital connection with dedicated bandwidth. This product is supplied with a number of different interfaces

and with capacities which vary from 64 kbit/s to 10 Gbit/s. Capacities up to and including 8 Mbit/s will belong to Market 6 according to the chosen market definition. Typical areas of use are:
- Building data and telecommunications networks
- Connecting data networks
- Network solutions combining voice and data transfer
- Terminating segments of leased lines for the Internet

- Digital Ethernet (Telenor): Digital point-to-point connection with dedicated bandwidth supplied with Ethernet interface. Supplied with capacities from 64 kbit/s to 1 Gbit/s. Capacities up to and including 8 Mbit/s will belong to Market 6 according to the chosen market definition. Typical areas of use:
  - Accesses for IP-network
  - Connection of Local Area Networks (LAN)
  - Data transfer, e.g. typically "heavy" traffic such as high-capacity file transfer
- Samband for samtrafikk/Emulert Samband for Samtrafikk [Leased Lines for Interconnection/Emulated Leased Lines for Interconnection] (Telenor):
  Leased Lines for Interconnection are leased lines with fixed and dedicated connection between Telenor's "Point of Interconnect" (POI) and the customer's own access point. Supplied with capacities of 2 Mbit/s and is based on ordinary SDH/PDH technology. Emulated Leased Lines for Interconnection is a fixed connection between two of Telenor's interconnection areas. Supplied with a capacity of 2 Mbit/s only. Both ordinary and emulated interconnection lines are offered solely to customers who have signed an interconnection agreement with Telenor.
- Analog Telefontype Samband [Analogue Telephone Type Leased Line] (Telenor): Analogue leased line designed for transferring voice and small amounts of data.
- Leid Linje [Leased Line] (Ventelo): Corresponding product to Telenor's Digital Punkt til Punkt [Digital Point-to-Point], but with capacities from 64 kbit/s to 2.5 Gbit/s. Capacities up to and including 8 Mbit/s will belong to Market 6 according to the chosen market definition.
- POI Access (Ventelo); Corresponds to a point-to-point Ethernet-based communication service. The service is network-based, where each individual connection is logically separated from other connections. The logical point-to-point connection is set up from the end user's location through to the central reception centre (MainPOI). Supplied with various capacities. Capacities up to and including 8 Mbit/s will belong to Market 6 according to the chosen market definition.
- Ethernet Transport SDH (Ventelo): Based on an SDH network constructed in ring structures which give high availability. Capacities from 4 Mbit/s to 1 Gbit/s. The product is offered in connection with the use of fixed Ethernet from 50 Mbit/s upwards. Capacities up to and including 8 Mbit/s will belong to Market 6 according to the chosen market definition.
- Ethernet transport VLAN (Ventelo): Uses Ethernet 10/100/1000BaseTx and SX to offer capacities from 2 Mbit/s up to and including 1 Gbit/s. Capacities up to and including 8 Mbit/s will belong to Market 6 according to the chosen market definition.

5 Analysis of the market

5.1 General – significant market power

93. The assessments that are used to designate a provider with significant market power shall, according to paragraph 76 of the Guidelines, be based on a forward-looking market analysis on the basis of existing market conditions.

94. NPT emphasises that the relevant subject of assessment is the existence of significant market power and not anti-competitive abuse of market dominance. It is therefore not central to the SMP assessment whether any market power/dominance is actually misused or not. However, it does not mean that a provider's behaviour in the market is irrelevant to the assessment of significant market power. Even if structural factors are accorded the greatest weight in the assessment, behaviour that serves to create or maintain competitive advantages may bolster the conclusion of significant market power.

95. The analysis of significant market power is based on the Guidelines and NPT's methodology.

5.2 Market shares and profitability

5.2.1 Market shares

96. Assessing market share is a natural starting point for analyses of significant market power, cf. paragraph 76 of the Guidelines. ESA notes that the Commission assumes that single market dominance would normally be found among undertakings with a market share of in excess of 40 percent. ESA furthermore writes:

> *"According to established case-law, very large market shares - in excess of 50 % - are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position. An undertaking with a large market share may be presumed to have SMP, that is to be in a dominant position, if its market share has remained stable over time.*

97. Market share can be measured by revenue, volume or number of customers. Characteristics of the relevant market will be decisive for the choice of market share measurements, cf. the Guidelines, paragraph 77 and 78.

98. Market share in this market can be measured using several different criteria, such as revenue, volume (number of leased lines) or total capacity. The Authority has considered it appropriate to calculate market shares in the relevant market based on revenues and the volume/number of leased lines. NPT considers revenue to be the most appropriate criterion, inter alia because neither volume nor total capacity takes into account the different types of leased lines, including the length of the lines. However, NPT has also calculated market shares based on volume/number of leased lines. The Authority believes that the inclusion of a calculation of market shares based on volume/number of leased lines will help to reinforce the overall assessment of market shares. Revenue is the criterion recommended by ESA (the Guidelines, paragraph78).

99. In the previous market analysis, the basis for calculating market shares included both external and intragroup sales. Intra-group sales only concern Telenor's internal deliveries of leased lines between its own companies. It was apparent from the previous analysis that it

could in principle be argued that the *internal use* of leased lines within the same company (inhouse-produced leased lines, known as 'self supply') by both Telenor and other providers in this market could have been included in the total revenue. As none of the operators records figures for revenue for *internal use*, NPT did not however believe that it was possible to obtain such information. NPT concluded at the time that there was no reason to believe that including the internal use of leased lines would have affected the conclusions in the analysis.

100. In the summary of the consultation responses to the announcement of the decision, NPT presented an assessment of whether production leased lines for fixed telephony should be included in the market on an equal basis with the leased lines that are sold externally, after Telenor brought this issue up in its consultation response. NPT concluded at the time that on the basis of an overall assessment these leased lines should not be included in the relevant wholesale markets for leased lines. The principal justification was that, historically speaking, Telenor's fixed network was primarily constructed in order to produce fixed telephony, and the network has largely been dimensioned on the basis of the capacity needs of the telephone service. In principle, the Authority thus views the services of fixed telephony and leased lines as being two different (groups of) services relying on a single common physical infrastructure – Telenor's fixed network.

101. During this round, NPT also received input from Telenor indicating that intracompany use should be included in the calculation of market shares, both for Telenor and for other relevant operators. The company notes that if only intragroup sales are included, an operator's market share will be influenced by the operator's choice of company organisation. In the view of Telenor, the assessment of the market situation for leased lines should be based on the related retail markets. The company furthermore claimed that a "broader" perspective must be taken than just leased lines. Telenor believes that various integrated solutions which also utilise leased lines as inputs must be taken into consideration. Examples are VPN which is supplied to business customers and mobile services for operators with their own network. Telenor are aware that it could be challenging for other relevant operators to provide information on revenues for such internal use. It is noted that it would presumably be easier for the operators to provide information on the volume/number of leased lines.

102. NPT assumes that for many of the operators this might concern, they could face considerable challenges in reporting data for inhouse-produced leased lines to NPT, and that the resulting figures would be subject to inconsiderable uncertainty. This particularly applies to revenue figures, which the Authority believes do not exist to any great extent, and in the best case may have to be estimated. However, NPT believes that there may also be challenges associated with reporting figures for volumes/numbers of leased lines that are used in the inhouse production of relevant retail services. On the basis of an overall assessment, NPT has therefore decided not to collect figures for the intracompany use of leased lines.

103. NPT further notes that, according to the figures for revenue that are reported to NPT, Telenor is clearly the largest operator in the relevant retail markets in which leased lines could be an input, either as purchased leased lines or as inhouse produced leased lines. This indicates that Telenor's market share in the leased line markets would not necessarily be reduced if the intracompany use of leased lines were also to be included. Although NPT concluded during the previous round that it would not be natural to view production leased lines for fixed telephony as an input for fixed telephony, the Authority nevertheless sees that there could be arguments which also suggest the opposite for such leased lines. If production leased lines for fixed telephony were also to be included in such intracompany use, this would in the opinion of NPT be likely to increase rather than reduce Telenor's market share for leased lines since Telenor has an extremely large share of the retail market for fixed

telephony. In the view of NPT, this suggests that also including the internal use of production leased lines for all relevant operators would not noticeably alter the picture of the market situation for leased lines compared with using figures for revenue and volumes/number of leased lines based on external and intragroup sales only.

104. NPT agrees with Telenor's view that market share calculations which include intragroup sales would be influenced by the organisation of the operators. Including such figures could therefore be associated with uncertainty. Below, NPT has therefore also included a calculation of market shares in Market 6 based on external sales only.

105. At the 2009 year-end, Telenor carried out a merger of four of its legal companies. Telenor Mobil AS, Telenor Telecom Solutions AS, Telenor Bedrift AS and Telenor Privat AS were merged to form a single company called Telenor Norge AS. This resulted in what previously consisted of intragroup sales of leased lines between these companies from 2010 being considered as the internal use of leased lines within the same company.

106. NPT has found it appropriate to calculate market shares in the market concerned based on two different methods. In the first calculation, a calculation method corresponding to that used in the previous analysis was used, i.e. Telenor's intra-group sales between group companies are included. However, this calculation method is only relevant up to and including 2009, as Telenor's reorganisation meant that previous intragroup sales were replaced by internal use from the beginning of 2010. In the second calculation of market shares, only external sales were included. The operators' market shares determined using these two calculation methods are summarised in Table 1 below.

	Including Telenor's intra-group sales		Excluding Telenor's intra-group sales		
	2005	2009	2005	2009	2010
Telenor	85 %	88 %	74 %	77 %	74 %
Ventelo	8 %	12 %	14 %	23 %	26 %
Other	7 %	0 %	12 %	0 %	0 %

Table 1. Market shares up to and including 8 Mbit/s based on revenue

107. At the end of 2009, Telenor had a market share measured in terms of revenue of 88 or 77 percent respectively, depending on whether or not intragroup sales were included in the calculation. At the end of 2010, Telenor also had a market share of 74 percent, based on external sales. At the end of 2009, Ventelo had a market share of 12 or 23 percent, and a market share of 26 percent at the end of 2010.

108. From the start of 2005 through to the end of 2009, Telenor's market share in the wholesale market for leased lines with capacities up to and including 8 Mbit/s was relatively stable. Regardless of the calculation method used, Telenor's market share increased by 3 percent. However, Telenor's market share, based on external sales, fell by 3 percent from 2009 to 2010. From 2005 to 2009, Ventelo's market share increased by 4 and 9 percent respectively. Ventelo's market share also increased by a further 3 percent from 2009 to 2010. At the end of 2010, the other operators, which at the end of 2005 had a market share of 7 and 12 percent respectively, had a combined market share of less than 0.5 percent in the market

for leased lines with capacities up to and including 8 Mbit/s. Consolidation has taken place in the market.

109. The table below shows the market shares of the various operators based on the volume/number of leased lines obtained using the two different calculation methods.

	Including Telenor's intra-group sales		Excluding Telenor's intra-group sales		
	2005	2009	2005	2009	2010
Telenor	92 %	93 %	83 %	85 %	78 %
Ventelo	6 %	6 %	13 %	14 %	22 %
Other	1 %	0 %	5 %	1 %	0 %

Table 2. Market shares up to and including 8 Mbit/s based on volume/number of leased lines

110. The trend in market shares based on the volume/number of leased lines has been similar to the trend in market shares based on revenues. During the period 2005 to 2010, Telenor had a relatively stable and high market share. Ventelo's market share increased slightly, while the market shares of other operators fell during the period.

111. This gives a clear indication that Telenor has significant market power in the wholesale market for leased lines with capacities up to and including 8 Mbit/s, cf. the Guidelines, paragraph 76.

112. However, market share alone is insufficient to determine whether a provider has significant market power, but must be viewed in context with the other relevant assessment criteria, cf. the Guidelines, paragraph 79.

5.2.2 Profitability

113. If over a period of time an operator operates with a price that is substantially higher than the underlying costs and thereby achieves high profitability (compared with alternative investments), this may be an indicator of significant market power.

114. However, allowance must be made for the possibility that high profitability over a given period of time may be the result of other factors than market power, for example the benefits of efficiencies, innovation or accounting depreciations that do not necessarily correspond to the actual value reduction in invested capital.

115. Similarly, low profitability is not necessarily an argument against the operator being assessed as having significant market power, but may be a result of inefficient production.

116. To NPT's knowledge, none of the operators in this market publishes profitability figures specifically for this relevant market. In Telenor's case, profitability is reported per business area instead of per product in the financial accounts. On the other hand, Telenor's product accounts (regulatory cost accounts) provide figures for profitability for leased lines per capacity class at wholesale level.

117. In a regulated market a dominant operator has fewer opportunities to set excessive prices. However, figures from Telenor's cost accounts for digital leased lines up to and including 8 Mbit/s show a return on capital employed over and above an imputed interest rate

of over 8 percent during 2010. The report includes revenues at wholesale level and indicates that Telenor has relatively high profitability for leased lines up to and including 8 Mbit/s.

118. The products in this relevant market are established products that have been marketed for a long time and must therefore be regarded as being in a mature phase of the product life-cycle. Such products will often show relatively better profitability than products that are in an earlier phase.

119. Viewed in conjunction with Telenor's considerable market share in this market, profitability is considered by NPT to be a circumstance that strongly supports the conclusion that Telenor has significant market power in this market.

5.3 Entry barriers[11]

120. Potential competition from new operators will normally affect a dominant operator's behaviour in the market, including price setting. Various forms of entry barriers may, however, weaken or remove the basis for potential competition. Possible entry barriers related to this relevant market are discussed below.[12]

5.3.1 Control of infrastructure that is difficult to duplicate[13]

121. If an operator controls infrastructure that is difficult to duplicate, and this infrastructure represents an important input factor in the relevant market, this could represent a substantial entry barrier for potential competitors.

122. Without taking a view on whether the relevant infrastructure in this market may be seen as an 'essential facility' in relation to competition law, NPT has assessed whether control of infrastructure that is difficult to duplicate can be seen as an entry barrier in this relevant market.

123. In many cases leased lines offered in this market will consist of at least one customer access. An access network will therefore usually be a prerequisite to be able to supply the lines that are demanded in this market. Operators who wish to offer leased lines up to and including 8 Mbit/s in the wholesale market have in practice a choice between basing their services on Operatøraksess (LLU) from Telenor (possibly dark fibre) or building their own access network. It is therefore not the case that potential operators must necessarily build a separate complete physical network to compete with Telenor.

124. Operators who choose to base their services on Operatøraksess (LLUB) must (in the same way as Telenor) invest in line equipment to be able to offer leased lines. This is largely standard 'off the shelf' equipment and is thus (in a technical sense) not difficult to duplicate.

125. Technically, it is also probably entirely possible to establish a physical infrastructure parallel to Telenor's cable infrastructure for terminating segments, in order to offer leased lines with capacities up to and including 8 Mbit/s. In other words, Telenor does not have control over infrastructure that is impossible to duplicate in technical terms. In practice, however, the establishment of an adequate alternative to Telenor's access network would

[11] Cf. the Guidelines, paragraph 81.

[12] Among other places, entry barriers are discussed in the Guidelines, paragraph 81: *"In fact, the absence of barriers to entry deters, in principle, independent anti-competitive behaviour by an undertaking with a significant market share.*"

[13] The criterion corresponds to "*control of infrastructure not easily duplicated*" in the Guidelines, paragraph 79. 79.

require such an investment of resources and time that there are grounds to assume it would be difficult to achieve the financially profitable duplication of this network.

126. Telenor's control of the nationwide access network is therefore deemed to constitute a significant entry barrier in this relevant market in the near future, a fact that consolidates Telenor's position in this relevant market.

5.3.2 Sunk costs

127. Unrecoverable fixed costs ("sunk costs") are costs attributable to an irreversible investment, i.e. a provider cannot expect to recover the investment once it has been made, for example through the sale of an investment item, if the provider wishes to exit the market. Unrecoverable fixed costs mean that a potential newcomer faces higher decision-relevant costs than the (or those) operator(s) already established. This cost difference can constitute an entry barrier to a potential entrant.

128. If entry into a market requires high sunk costs, the established operator may have an incentive to make a more extensive investment than it otherwise would have done. This can send a signal to potential newcomers that it would not be profitable to attempt to enter the market. Sunk costs can therefore give rise to strategic behaviour among the established operators, further raising the entry barrier.

129. Telenor is the only operator to own a nationwide access network, which has taken decades to construct. As mentioned above, an access network is usually a prerequisite to be able to supply the leased lines that are demanded in this market. There is little doubt that it would be extremely resource and cost-intensive for a potential competitor to establish a competing access network on an equally large scale. There is furthermore little doubt that such an investment would largely have to be viewed as irreversible and thereby represents an entry barrier as described above. To compete with Telenor or other established operators on leased lines up to and including 8 Mbit/s, the potential new entrant does not strictly have to establish its own physical network – since Telenor is obliged to offer access to the fixed access network, i.e. LLU. Even so, a potential newcomer would have to invest in equipment to be able to offer leased lines. Such investments may also often be considered as irreversible. As far as NPT is aware, there is a very limited second-hand market for such equipment. Telenor's obligation to provide access to the fixed access network (LLU), as indicated above, could reduce the size of the irreversible investments.

130. It is further worth noting that a newcomer is free to choose newer and more cost-effective technology than Telenor's copper-based access network[14], and to undertake investments in areas where the potential profit is greatest. This is an advantage that potential newcomers have over Telenor and can thus be viewed as reducing some of the asymmetry they face in relation to Telenor.

131. Intangible investments can also be unrecoverable and represent an entry barrier. Investment in brandbuilding (for example through advertising and other marketing) is an example of such investments. Another example is costs relating to research and development (R&D).

132. In NPT's view, costs relating to advertising and brandbuilding in the wholesale leased lines markets do not represent an entry barrier. This is because customers in the wholesale market are largely competitors to Telenor. Experience has shown that these generally prefer to

[14] See section 5.4 on potential competition and innovation.

choose a different provider than Telenor where possible. A potential competitor in the wholesale markets for leased lines will therefore expect to devote far fewer resources on advertising and marketing than would be the case in the retail market.

133. With respect to costs relating to research and development, NPT is of the opinion that the development of new services in this relevant market does not constitute any appreciable entry barrier because the products in this market are largely standardised and relatively homogeneous.

134. Although opportunities to limit irreversible investments in connection with establishment as a provider in this relevant market do exist, NPT finds on the basis of an overall assessment that sunk costs will normally constitute a significant entry barrier, and that costs linked to the construction of an access network in particular will constitute the entry barrier in this context.

5.3.3 Economies of scale[15] and scope [16]

135. Economies of scale exist when an increase in production brings a fall in average unit cost. This is characteristic of production based on technology with relatively high fixed costs and low variable costs.

136. Economies of scope are reductions in average unit cost when more than one service is produced using common means of production, for example common infrastructure or common administrative systems.

137. Economies of scale and scope can both work as entry barriers in relation to new potential operators and as a competitive advantage in regard to established competitors in the market.

138. There are undoubtedly significant economies of scale associated with establishing leased line services. The unit costs (cost per Mbit/s) will for example fall sharply as the network capacity of a provider increases. Furthermore, unit costs will also fall sharply as more connections are established. For example, in a ground-based network, it is possible to utilise conveyance routes far more efficiently if many users are connected to the network in a given geographic area. Telenor has a far higher market share in Market 6 than in the former Market 14. This could indicate that Telenor's economies of scale are greater in Market 6 than in the former Market 14.

139. Telenor has to date been subject to an obligation to offer leased lines to end users with capacities of up to and including 2 Mbit/s on a nationwide basis. This has also made it easier for Telenor to supply leased lines with capacities higher than 2 Mbit/s, as the company already has a presence. NPT finds that Telenor has significant economies of scale in this relevant market as a result of its nationwide services. No potential newcomers in this market are expected to achieve sufficient 'critical mass' to exploit economies of scale in a comparable manner.

140. Furthermore, it is assumed that given its broad portfolio of products, Telenor enjoys greater economies of scope than its competitors. For example, there is reason to believe that Telenor enjoys certain economies of scope related to its nationwide telephony and leased line services.

[15] The criterion corresponds to "economies of scale" in the Guidelines, paragraph 79. 79.
[16] The criterion corresponds to "economies of scope" in the Guidelines, paragraph 79. 79.

141. Based on the above, NPT finds that economies of scale and scope constitute a significant entry barrier in this relevant market.

5.3.4 Access to financial resources[17]

142. Access to financial resources is important to an operator's opportunity to enter markets requiring major initial investment. Differences between operators relating to access to financial resources may constitute an entry barrier. In addition, everything else being equal, it will be expected that an operator with market power and good financial standing will be less exposed to competition than an operator with market power without good access to financial resources. Besides, an operator with market power and good access to financial resources will be better able to defend his market share if new competitors enter the market than an operator with market power without good access to financial resources.

143. Establishing a competitive alternative to Telenor's provision of leased lines with capacities up to and including 8 Mbit/s will be associated with relatively high entry costs. Telenor has a strong financial position. On the other hand, highly capitalised potential challengers to Telenor do exist. There are no grounds for claiming that Telenor has better access to financial resources than potential competitors.

144. Therefore, access to financial resources cannot be said to constitute an entry barrier in this relevant market.

5.3.5 Access to distribution and sales channels[18]

145. In markets in which the established operators have a well-developed distribution and sales network this may function as an entry barrier for potential new operators. This applies in particular in markets in which there are major costs associated with establishing distribution and sales channels, or where the established operators have concluded exclusive agreements with the largest/most important distribution channels in the market.

146. It is NPT's assessment that a lack of access to distribution and sales channels will predominantly be a problem in markets in which the demand side consists of households (the private market). In such markets, it may in some cases be difficult to gain access to key sales channels such as major nationwide retail chains. The customers in this relevant market consist of operators who are themselves providers of electronic communications networks and services. Such operators usually have a good overview of the market and will make choices based on their knowledge of it. It is therefore unlikely that potential new entrants in this relevant market will not enter the market because they consider it difficult to establish sales channels.

147. Based on the above, NPT concludes that access to distribution and sales channels does not represent an entry barrier in this relevant market.

5.3.6 Barriers to expansion[19]

148. A market with large growth potential is as a rule more attractive to potential new operators than markets in which the total units sold and/or the number of customers has

[17] The criterion corresponds to "easy or privileged access to capital markets/financial resources" in the Guidelines, paragraph 79. 79.
[18] The criterion corresponds to "a highly developed distribution and sales network" in the Guidelines, paragraph 79. 79.
[19] The criterion corresponds to "barriers to expansion" in the Guidelines, paragraph 79. 79.

stagnated or is on the way down (known as 'mature' markets). Operators considering entry into a 'mature' market must generally aim to capture customers from the established operators. If there are barriers to growth in a market, these may therefore be looked upon as a possible entry barrier.

149. The market for leased lines up to and including 8 Mbit/s can be viewed as a mature market, where the number of lines or revenue cannot be expected to grow to any great extent in the near future. This is primarily because in many cases broadband connections can meet the same needs as leased lines with capacities up to and including 8 Mbit/s, particularly for access. During the period 2005 to 2010, total revenues in the market for leased lines with capacities up to and including 8 Mbit/s, based on external sales, fell by around 36%. This implies that any new providers in this market must largely base their operations on capturing customers from existing providers, which, overall, makes it more difficult for new providers to enter the market.

150. Based on the above, NPT finds that barriers to expansion constitute a slight entry barrier in this relevant market.

5.3.7 Regulatory entry barriers

151. Regulatory entry barriers exist when market access is limited by regulatory conditions. Examples are requirements concerning licences, resource restrictions or restrictions relating to health, safety and the environment (direct regulatory restrictions). Furthermore, various forms of price control may also have entry-hindering effects, cf. Recital 11 of the Recommendation.

152. Uncertainty regarding future regulation can function as an entry barrier because uncertainty in itself can yield lower expected profitability at market entry and can thereby lead to potential challengers either dropping or delaying plans to enter the market. This aspect will naturally be particularly important during a period of new regulations. Regulatory uncertainty can, however, be reduced if the regulatory authority clearly informs the market operators about how the regulations will be practised and is consistent at the same time in the actual implementation of these rules.

153. The most important regulatory entry barrier in this market, Telenor’s exclusive right to offer leased lines, was removed as part of the liberalisation of the telecoms market.

154. As sole operator, Telenor has until now been subject to an obligation to provide a minimum set of leased lines. This means that Telenor has had to establish a nationwide infrastructure for leased line services. The certainty that Telenor has a nationwide infrastructure, and is in principle capable of supplying leased lines according to the specified minimum set to practically all addresses in the entire country, may in itself represent an entry barrier to potential new entrants in this market. The reason for this is that Telenor’s universal service obligation can function as a signal to the rest of the market – and to potential operators – that Telenor will be in the market regardless. Due to this obligation, Telenor has to date been unable to allow simply commercial considerations to dictate with respect to the decision to operate in a particular area. This means that a potential newcomer could, at least up until now, conceivably drop plans to enter an area due to Telenor’s access obligation.

155. In the draft decision of 14 March 2012, NPT announces the withdrawal of the designation of Telenor as an undertaking with significant market power in the former Market 7, as well as Telenor’s current obligations in the retail market for the minimum provision of leased lines. The fact that Telenor already has a nationwide infrastructure is however assumed to mean that potential entrants could be reluctant to establish themselves in an area.

156. Price controls, or expectations of future price controls, can function as an entry barrier in the market for electronic communication in general, including this relevant market. Furthermore, price controls, or expectations of future price controls, can affect the behaviour of operators already in the market.

157. If a potential new operator in the market for leased lines up to and including 8 Mbit/s believes it is possible that it could be subject to price controls, if, for example, it is designated by the regulatory authorities as having significant market power in this market (or in a limited geographic area), this would affect expected future earnings and thus act as a potential entry barrier. Such an expectation, or fear of, being subject to obligations as an undertaking with significant market power can affect the degree to which existing operators plan to expand in the market. However, NPT believes that there are few potential new operators in this market that attach much weight to this factor. This is due to the fact that it would be difficult for a new operator to gain status as an undertaking with significant market power in a market like this one, with high entry barriers due to infrastructure that is not easily duplicated.

158. Expectations of price controls being imposed on the dominant provider(s) can also act as an entry barrier if potential new entrants regard the regulated price as being, or potentially being, so low that it would be impossible to compete in the market. In this relevant market, expectations of strict controls being imposed on Telenor's prices may cause competitors to refuse to enter the market at all or particular sectors of it.

159. Other forms of regulation than price controls may also affect the opportunities to enter the relevant market. Obligations regarding co-location and access to networks or network elements in other markets could have a positive effect on the entry possibilities in this relevant market. The obligation concerning access to Telenor's copper access network (i.e. LLUB) could encourage potential competitors to enter the market.

160. Based on the above, NPT finds that uncertainty about future regulation may represent a certain entry barrier in the market.

5.4 Potential competition and innovation

161. Potential competition relates to whether the operators not in the current market can help to create market dynamics within the forthcoming regulatory period. Potential competition will also, among other things, be able to discipline pricing in the retail market, because high prices make entering the market more attractive.

162. As a rule, in markets with a high degree of innovation the opportunity to exercise market power will be more limited than in markets with little innovation. Technological development may therefore be of significance for potential competition in the market. Innovation resulting from technological development can therefore contribute to weakening an operator's position in the market in relation to potential competitors.

163. There is reason to believe that innovation resulting from technological and product development can serve to weaken Telenor's position in this relevant market. For example, broadband connections will in the future continue to be a potential competitor to digital leased lines for connection to the Internet and the realisation of VPN solutions. The same applies to the development of products based on radio solutions, for example WLAN or wireless radio connections.

164. However, there is one fundamental and important input that probably will not be subject to any significant degree of innovation, namely activities relating to the establishment of the

physical infrastructure, such as the construction of conveyance routes. For the foreseeable future, the construction of alternative physical networks will, with the exception of radio solutions, entail the physical trenching of inter alia fibre and pipes and the construction of cable ducts, etc.

165. Based on the above, NPT finds that innovation and technological development will contribute only a limited amount of potential competition in this relevant market.

5.5 Provider behaviour

5.5.1 Bundling of products/product differentiation[20]

166. "Product differentiation" means a strategy that aims to give a provider's own products characteristics that distinguish it from the products of competing providers. Product differentiation can take place both in the wholesale and retail market. A high degree of product differentiation by a provider may provide a basis for strong customer loyalty and reduce competition in the market. Strong brands can have similar effects.

167. Telenor offers nationwide leased line services in most forms of interfaces, different capacity classes, multi-access, etc. This means that Telenor has a broader product spectrum than its competitors and potential competitors, and has the opportunity to be a total supplier in the wholesale markets for leased lines in the same way as in the retail leased lines market. In NPT's view, this can serve to strengthen Telenor's market power to a certain extent in this relevant market.

168. Bundling of products is a variation of product differentiation. An operator with market power in a relevant market can link (tie together) services or products in this market with services or products in another market, so that the operator can provide a bundle of services/products that are differentiated from the competitors' offering and that the competitors have a limited opportunity to copy. In this way, the bundling of services/products can contribute to market power in one market creating competitive advantage in another market. Such competitive advantages may be relevant to the assessment of significant market power in the latter market.

169. An example of product bundling which involves wholesale leased lines up to and including 8 Mbit/s is Telenor's offer of Emulated Leased Lines for Interconnection, which are only sold to wholesale customers that have entered into an interconnection agreement. To NPT's knowledge there is little product bundling taking place between Telenor's offer of leased lines up to and including 8 Mbit/s and products in other markets that are serving to strengthen Telenor's market power in this market.

170. Different forms of switching costs when changing provider can reduce the competition at both the retail and wholesale levels. Restrictions or costs associated with the end user switching providers increase the opportunity for a provider with market power to behave independently in the market. Such restrictions may be of a practical, technical or financial nature, or may be a result of the end user having greater confidence in existing and well-established operators in preference to new operators and being unwilling to take the risk that a switch could involve.

[20] The criterion corresponds to 'product/services diversification (e.g. bundled products or services)' in the Guidelines, paragraph 79.

171. Telenor offers many discounts in its various agreements. Many of the discounts are linked to the lock-in period. The lock-in periods and discount conditions mean that it is possible that a certain lock-in effect may exist which could hinder competition.

172. Based on the above, it is NPT's assessment that Telenor's product differentiation, lock-in periods, switching costs and discount schemes for leased lines have a limited lock-in effect, and therefore serve to hinder competition in this relevant market to a very limited extent.

5.5.2 Leveraging of significant market power to closely related markets[21]

173. Significant market power in one market may help to strengthen a provider's market position in a closely related market. Such leveraging of market power can take place vertically, i.e. between a wholesale market and a retail market, or horizontally, i.e. between different product markets at the same level in the value chain.

5.5.2.1 Vertical integration[22]

174. A vertically integrated provider is characterised by the provider's activities comprising more than one link in the relevant value chain. Typically a vertically integrated provider will be present both in infrastructure markets ('upstream markets') and end user markets ('downstream markets'). Through a strong position in the 'upstream market' vertically integrated providers can try to keep competitors in the 'downstream market' out of this market, for example through the pricing of products in the 'upstream market' or by not offering products in the 'upstream market' to competing providers in the 'downstream market' at all. In this way a vertically integrated provider with a strong position in the 'upstream market' can strengthen his position in the 'downstream market'.

175. Telenor is vertically integrated in the leased lines markets. The company owns both an extensive nationwide trunk network and an access network reaching practically all permanent addresses throughout the country, which comprise the basis of its wholesale services. In addition, the company has a service provider division that supplies communications solutions to inter alia the business market where leased lines are part of a broad product spectrum.

176. In general, vertical integration can in many ways have a streamlining effect when the integrated provider internalises several levels in the value chain in the same company or group, thereby realising different efficiency gains such as better use of support systems, more coordinated planning of production and lower transaction costs.

177. As mentioned above, a vertically integrated company will have the opportunity to exclude competitors from the retail market if the company has a strong position in the wholesale market.

178. However, since the relevant market analysed here is a wholesale market, the fact that Telenor is vertically integrated cannot by itself serve to strengthen Telenor's position in this relevant market.

5.5.2.2 Horizontal integration

179. A provider is horizontally integrated when through ownership he has control of different parallel infrastructures that may be used to supply competing products to the end user. In this

[21] Cf. the Guidelines, paragraph 84.
[22] The criterion corresponds to 'vertical integration' in the Guidelines, paragraph 79.

case the provider can strengthen his market power in a market by preventing competition from an alternative infrastructure over which he has control.

180. In addition to owning and operating the traditional telephone network, Telenor is a major operator in alternative electronic communication networks, including cable TV systems, other broadcasting networks and wireless access networks (for example WLANs).

181. There is reason to believe that Telenor's ownership of cable TV networks (through Canal Digital Norge AS) and the digital terrestrial broadcasting network (through Norkring AS) in particular could contribute to the weakening of competition from alternative infrastructures in this relevant market. This ownership is therefore considered to contribute to some degree to the strengthening of Telenor's market position in the markets for leased lines, including the market for leased lines up to and including 8 Mbit/s at wholesale level.

5.5.3 Price developments

182. The development of prices over time may indicate something about the degree of competition, possibly the degree of potential competition, and can thereby provide an indication of whether a provider has market power.

183. During the period 2005 to 2010, Telenor's monthly standard list prices for the leasing of Digital Point-to-Point leased lines up to and including 8 Mbit/s fell slightly. For example, the list price for the monthly leasing of a 2 Mbit/s leased line (including n*2 Mbit/s) fell by 10 - 14 percent. The price of short leased lines (up to 10 km) has fallen by slightly more than the price of longer leased lines.

184. Telenor's prices for leased lines up to and including 8 Mbit/s have been subject to a requirement for cost orientation. This makes it less interesting to look at price developments as an indicator of competition and market power.

185. In summary, it is NPT's view that since prices have been regulated, price developments per se are less suitable as an indicator of market power.

5.6 Conditions on the demand side

5.6.1 Market power/countervailing buyer power[23]

186. The presence of customers with negotiating strength can restrict a provider's opportunity to behave independently in the market. Such countervailing buying power may be the result of a customer's size, purchasing volume or the customer having something to offer, for example better market access to other markets.

187. Customers in the wholesale market are themselves providers of electronic networks and/or services. Several of these customers purchase considerable volumes, and in general the demand side in the wholesale leased lines markets is more concentrated than the case is in the equivalent retail market. However, to NPT's knowledge, there is no single customer or group of individual customers in this market who purchase a sufficiently large volume for the customer or group of customers to achieve negotiating power in a manner that will curb possible significant market power on the supply side. Furthermore, there is no single customer or group of individual customers in the market who can offer market access in other markets in a way that can reduce market power on the supply side in this relevant market. However, it

[23] The criterion corresponds to 'absence of or low countervailing buying power' in the Guidelines, paragraph 79.

is not inconceivable that a potential new entrant can offer market access outside Norway and thus have a certain amount of negotiating strength vis-à-vis Telenor in the market for leased lines up to and including 8 Mbit/s in Norway.

188. Based on the above, NPT has concluded that it is unlikely that countervailing buying power in this market could appreciably reduce Telenor's possible significant market power.

5.6.2 The customers' options and any costs of switching provider/lock-in effects

189. Restrictions or costs associated with the end user switching providers increase the opportunity for a provider with market power to behave independently in the market. Such restrictions may be of a practical, technical or financial nature, or may be a result of the end user having greater confidence in existing and well-established operators in preference to new operators and being unwilling to take the risk that a switch could involve.

190. The price lists for Telenor's digital leased lines[24] regulate prices, lock-in periods and discounts for leased lines. The minimum lease period for lines with capacities up to and including 2 Mbit/s is three months. For circuits above 2 Mbit/s the minimum lease is one year. The notice period for leased lines with capacities up to and including 2 Mbit/s is one month. For capacities above 2 Mbit/s the notice period is three months. If the leased lines are cancelled before the minimum lease has expired, an amount equivalent to the remainder of the minimum lease will be charged.

191. The lock-in periods and discounts linked to the contract period, combined with relatively high prices for establishing such leased lines, imply that there is a certain lock-in effect that could hinder competition, as the alternative of connecting to another provider after establishing connections from Telenor would have to be significantly cheaper to make it worthwhile for customers to switch.

192. On the basis of the above, it is NPT's assessment that Telenor's lock-in periods and discount schemes for leased lines may have a certain lock-in effect, and could therefore serve to consolidate Telenor's possible significant market power in this market.

5.6.3 Customers' access to information

193. For customers to be able to make effective choices between providers in a market they must have access to information that makes it possible to compare the various offers. Complicated price structures and various bonus and discount schemes can restrict the opportunities for effective end user choice and may contribute to strengthening an already dominant operator's position in the market.

194. As in the previous decision and prior to that Telenor has been subject to a requirement to prepare official price lists for services concerning leased lines, it has historically speaking not been a problem for customers to gain access to information.

195. NPT deems it unlikely that customers in the market for leased lines up to and including 8 Mbit/s lack information on prices and services to an extent that can strengthen Telenor's position in the market.

[24] See Telenor's price list on the Web at http:// www.jara.no

5.7 Conclusion - single dominance

196. In this relevant market, Telenor had a market share in 2010 of 74 percent, measured according to revenues based on external sales. At the same time, Ventelo, Telenor's only competitor of importance, had a market share of just 26 percent. In accordance with the Guidelines, paragraph 76, this is a clear indication that Telenor has significant market power in this market.

197. Various forms of entry barriers exist in this market. In NPT's opinion, it is particularly Telenor's control of a nationwide access network, as well as considerable sunk fixed costs and economies of scale and scope that are serving to strengthen the conclusion that Telenor has significant market power.

198. Even though technological advances and development of new products may eventually cause changes in the competitive situation, it is NPT's assessment that such developments at the present time indicate that there will be only limited changes in the competitive situation in this market.

199. Based on the discussions concerning provider behaviour and above demand-side conditions, NPT has concluded that these criteria taken together do not provide grounds to affect a possible conclusion that Telenor has significant market power.

200. Following an overall assessment, NPT has determined that Telenor ASA has significant market power (single dominance) in the wholesale market for leased lines up to and including 8 Mbit/s.