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Financing of the Roll-out of Broadband Networks

-- Note by the Netherlands --

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FINANCING THE ROLL-OUT OF NEXT GENERATION ACCESS NETWORKS

Introduction

1. ACM, the Netherlands Authority for Consumers and Markets, is an independent authority created on April 1st 2013, when the Netherlands Consumer Authority, the Netherlands Competition Authority (NMa) and the Netherlands Independent Post and Telecommunications Authority (OPTA) merged.1 ACM promotes opportunities and options for businesses and consumers, with the goal of increasing consumer welfare.2 With the creation of ACM, synergy is created by combining the knowledge and experience of experts in consumer protection, competition, and regulation. Cross-sectoral cooperation within ACM is strongly encouraged, with the goal of identifying and tackling problems from different angles.

2. On the basis of specific regulations for the telecommunications sector – laid out in the Dutch Telecommunications Act3 – ACM aims to promote competition by supporting innovation and investments in infrastructures, to contribute to the development of the internal market, and to promote the interests of end-users in terms of affordability, quality, and availability of certain products and services. In that regard, it is critical to safeguard the capacity and quality of networks. This requires network investments in order to facilitate the increased demand and development of innovative services.

3. Having fast and high-quality broadband internet is a prerequisite for a competitive, innovative and sustainable knowledge economy. The European Commission has drawn up an ambitious Digital Agenda for 2020, which calls for major investments in broadband networks in many Member States. The historical presence of two competing broadband networks in the Netherlands creates the incentives for the market to invest. As a result, the Netherlands has a well-developed communications infrastructure and appears to be on schedule for realizing the goals set out in the Digital Agenda.4

4. This paper deals with the financing of the roll-out of Next Generation Access (NGA) networks in the Netherlands.5 The first section provides background on the telecommunications context and describes the current situation in the Dutch broadband industry. In the next section, the relevant types of investment and prospects for the future development of NGA networks are described. Here we also set out the discrepancy between public and private investment in that context. Section three describes the regulator’s

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1 The Establishment Act provides for the creation of ACM. Section 2 of the Act determines ACM’s independence and its powers with regard to the exchange of data and intelligence. This section will be amended in the event that the Streamlining Bill (currently before the Dutch Senate) is adopted. The Streamlining Bill is aimed at harmonizing the powers, procedures and instruments within ACM and contributes to the synergy and efficiency within the new agency.

2 Source: ACM Strategy.


5 This paper is restricted to explaining the situation with regard to the financing of fixed networks (as opposed to mobile networks).
role concerning investments in high speed broadband and gives examples of where ACM’s competition, consumer and regulatory powers meet in the oversight of the broadband sector. Finally, we conclude and describe the main challenges that ACM foresees in the future.

1. **Telecommunications in the Netherlands**

5. Broadband connections in the Netherlands include Digital Subscriber Line (DSL) / copper, cable, and fiber optic. The Dutch market situation is different from that of most other countries because of the existence of both a full coverage network of copper lines, which finds its history in telecommunications, and a cable network with also a broad coverage area (>95%). The cable network was originally installed for transmitting television signals and is nowadays also used for internet services and telephony. This means that, unlike most other countries, the Netherlands has a very fast and widely available alternative to the copper network.

6. The majority of subscriptions in the Netherlands is based on DSL, but the number of subscriptions has been decreasing over the last few years.\(^6\) In 2013, DSL subscriptions dropped by 4 percent, while cable providers welcomed 4 percent new subscribers. Fiber optic posted the strongest growth rate in the past year; the number of subscriptions rose by 155,000, or 51 percent. KPN owns the DSL network in the Netherlands. Other parties offer services on KPN’s network, such as Tele2 and Online. The vast majority of fiber connections belongs to the joint venture KPN/Reggefiber (85% of fiber).\(^7\) Another party that is active in the roll-out of fiber is CIF. Cable-based competition for broadband mainly comes from UPC (35% of cable) and Ziggo (55% of cable).\(^8\)

7. Before liberalization, KPN was the incumbent fixed-line telecom operator in the Netherlands. Competition was introduced by allowing other companies to use KPN’s network at regulated conditions. These companies now offer services to consumers too, mainly based on Main Distribution Frame access (MDF-access). With a market share of 40-45 percent in internet access, KPN is currently still the biggest player in the Dutch broadband sector.\(^9\) Its market position continues to be very strong, particularly for corporate customers.

8. The growth in the number of cable-based subscriptions is reflected in the market shares of UPC and Ziggo. Their market shares have increased steadily in the last few years, giving them a combined share of around 40-45 percent on internet access.\(^10\) The market positions of the other participants (e.g. Tele2 and Online) have slightly decreased over the last years. Vodafone entered the fixed market last year, but still has a small market share.

2. **Investments in NGA-networks**

9. The demand for high speed internet in the Netherlands, as well as in many other countries, is expected to rise exponentially in the coming years.\(^11\) Demand for capacity-intensive services increases as cloud computing, more intense use of peer-to-peer technologies, social networks, gaming, M2M-
communications, and video on demand services, further develop. This calls for continuous investments in NGA networks. In the Netherlands three types of investment in NGA networks can be identified: upgrades to existing cable lines, upgrades to existing DSL lines, and the roll-out of fiber optic.

10. Cable and DSL offer the possibility for high-speed internet and can be upgraded at relatively low cost. Methods to increase internet speed through cable are diverse. These include both network improvements such as ‘node splitting’ – where infrastructures are added in order to serve subscribers through multiple nodes –, and transmission techniques such as DOCSIS3.x. A type of technique to upgrade DSL is rolling out fiber to the subloops (or further) and upgrading the capacity of the copper loop by ‘vectoring’ – the access technology that exploits the existing infrastructure of copper wires for traditional telephone services as a way of delivering high speed internet access. This can be combined with ‘pair bonding’, i.e. pairing the copper lines of a single connection.

11. The number of fiber connections in the Netherlands has grown rapidly during the last couple of years, and this development is expected to carry on in the near future. Compared to upgrades to cable and DSL, the investments in fiber optic are relatively expensive, as there are no pre-existing facilities for further development (greenfield situation). Network owners KPN/Reggefiber and CIF offer access to the passive infrastructure that they own; i.e. Optical Distribution Frame (ODF) access. These passive infrastructures generally require a period of 20 to 30 years before the costs of investment in Fiber-to-the-Home (FttH) are recovered. The business case for the roll-out of FttH therefore strongly depends on the capacity utilisation rate of the network. This is reflected in the investment strategies of both KPN/Reggefiber and CIF:

12. KPN/Reggefiber is the largest provider of FttH connections in the Netherlands. KPN/Reggefiber uses a minimum (30%) initial occupation rate for the roll-out of fiber optic. Through a strategy of ‘demand bundling’, KPN/Reggefiber can assess in advance the demand for optical fiber in certain areas, gain commitment from consumers, and ascertain a business case for their investment. In a few cases, KPN/Reggefiber decided not to roll-out fiber optic because of an insufficient amount of subscribers (<30%).

13. Communication Infrastructure Fund (CIF) is an investment fund for communication infrastructures, financed by pension funds and other institutional investors. Its strategy is to buy cable networks, build a new FttH-network, and migrate existing cable connections to FttH. By making use of the existing cable customers base, CIF can get the assurance of sufficiently high capacity utilisation rates before investment.

2.1 Prospects

14. It is generally expected that – in the long run – FttH and upgraded cable will remain as the two competing broadband networks in the Netherlands. These types of networks are able to carry the expected

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14 Source: Glasmonitor 2013: Data and developments in the fibre optics sector in the Netherlands.
15 Source: Glasmonitor 2013: Data and developments in the fibre optics sector in the Netherlands.
17 Source: Glasmonitor 2013: Data and developments in the fibre optics sector in the Netherlands.
future growth and demand for capacity with respect to high-speed internet. KPN recently announced that – alongside its investments in fiber – it will also continue to focus on upgrades to DSL. 19 For the medium term, upgraded DSL is still considered sufficient to meet the demand of consumers.

2.2 Public vs. private financing of NGA-networks

15. The Netherlands is a relatively small country in Europe. It has a population of nearly 17 million, making it one of the most densely populated countries in the world. The Netherlands has a well-educated population and is among the countries in Europe with the highest GDP per capita. 20 Geographically, the Netherlands is mostly flat and sandy-soiled. Around a quarter of the country is located below sea-level (and protected by dikes). The economic, demographic and geographic characteristics of the Netherlands create a very suitable environment for investments in telecommunications infrastructures. For many years, the Netherlands has been one of the countries with the highest number of broadband connections (per 100 inhabitants). 21 This ensures a high usage rate, and makes the Netherlands a leading country in Europe with respect to the roll-out of NGA networks.

16. The historical presence of two parallel competing infrastructures – DSL and cable – in the Netherlands has created incentives for parties to (continuously) invest in broadband. More specifically, the existence of a broad coverage cable network has forced the incumbent party KPN to a strategy of rolling-out fiber optic (next to upgrading its existing copper network), which at the same time incentivizes the cable operators to further upgrade the cable networks. In that sense, it is arguable that the Dutch case illustrates that competition between infrastructures stimulates investment in NGA networks.

17. Almost all investments in NGA networks in the Netherlands come from private funding. The role for public investments is very limited, mainly because of the existence of the two competing networks. Insofar as there are any public investments, it is done by regional and local government in the so-called “buitengebieden”, or ‘white areas’ (European Commission State aid Guidelines for broadband) 22. These typically include connections to houses in rural areas situated relatively far from the city centres, creating higher investment costs, and making them less profitable to the commercial telecom companies. Due to its geographic traits, the Netherlands has only few of these potential white areas. In recent years, there has been a number of regional and local initiatives to use public funding for the roll-out of NGA networks. 23 The Ministry of Economic Affairs provides guidance to government in these areas concerning how to cooperate with market parties in order to gather funds and make these investments possible. 24 ACM advises regional and local government about the ways in which they can ensure that competing parties can gain access to these local networks.

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2.3 State aid

18. The European Commission State aid Guidelines for broadband determine that public investments in NGA networks can only apply when there is no risk of crowding out investments by market players.25 In 2005, the European Commission for the first time ruled that public funding for an additional broadband network was prohibited, concerning the Dutch city Appingedam.26 The project concerned an area already served by broadband networks and the European Commission considered that the aid was not necessary to remedy either a market failure or unaffordable prices for broadband services. Two years later the European Commission concluded that the participation of the city of Amsterdam in a fiber network company did not entail state aid, as the city participated under the same conditions as private investors.27

3. ACM’s role

19. Regulatory authorities play an important role in relation to investments in NGA networks. This is recognized by the European Commission: “The regulatory approach has proved successful to foster competitive markets, to encourage investment and to increase consumer choice (...). Further deployment of broadband networks and in particular of Next Generation Access (NGA) networks continues to require the intervention of the national regulatory authorities (NRAs) due to their role in the electronic communications sector.”28 Both ACM and the Dutch government believe that (further) investments in NGA networks are crucial, because the availability of high speed internet can support economic growth. ACM considers it its primary role to remove any barriers for investments in NGA infrastructures, by creating the appropriate circumstances in which these investments can be made.

3.1 Regulatory intervention

20. Every three years, ACM conducts a thorough analysis of the Dutch telecommunications markets.29 In its market analyses, ACM establishes whether there is effective competition in a certain market, or whether certain firms have significant market power (SMP). If that is the case, ACM can impose obligations on these firms, such as unbundled access to their network or regulated tariffs for their access services. By issuing these decisions, ACM aims to create the appropriate circumstances for investments in broadband internet by stimulating competition, and seeks to ensure that consumers have enough choice between various providers and services.

21. This year, ACM is in the last round of its three-year period market analysis decisions for unbundled access (2012-2014) and has started preparations for the new period (2015-2017). Because of the interests involved in the market analysis decisions, consultation with market parties is crucial. This year, two pending merger cases add complexity to the market analysis process; KPN/Reggefiber and UPC/Ziggo (see section 3.2).

29 Section 6a of the Dutch Telecommunications Act and the relevant European Commission Guidelines oblige ACM to issue the market analysis decisions.
22. The ultimate goal of the regulatory framework is to achieve a state of sustainable competition, where regulatory obligations at both the wholesale and retail level can be removed.\(^{30}\) To achieve this, (parallel) competing broadband infrastructures – insofar as possible – should exist. In practice, ACM expects that the last part of the access network is not economically replicable and that two parallel networks is the maximum feasible in the Netherlands. Investments by third parties will only be fostered if they have access to one of the networks. In case the access is not provided on a commercial basis, ACM can assist them by regulating this access, provided that (a risk of) SMP or joint dominance is signalled in the market analyses.

3.1.1 Minimizing regulatory risk

23. Access regulation can impact the investment incentives of networks owners. Regulatory authorities have to deal with a trade-off between encouraging competition by access regulation and creating optimal conditions for investment by network owners. In order to cope with this trade-off, ACM introduced a pricing model for FttH-access, which aims to reduce the risks for the investor and at the same time provides entrants with access at reasonable terms.\(^{31}\) In this model, ACM commits to a long term cap that can only be corrected downwards if the operator realises a return that is at least 3.5% higher than its WACC. In addition, ACM allows some risk-reducing measures in the pricing structure such as a discount scheme facilitating penetration pricing, one-off investment fees and indexation of the price cap with the consumer price index. In this way ACM aims to promote competition and incentivize parties to invest in NGA networks.

24. Investors in NGA networks can face different types of risk. Systematic risk cannot be diversified away by an investor, it should be compensated in the Weighted Average Cost of Capital (WACC). The risks involved with regulation are however non-systematic by nature. Regulatory intervention can create asymmetric risk as a result of which investment incentives in new networks can be affected negatively. A regulator can neutralize these effects by ensuring that the owner of the regulated business is compensated for the asymmetric risk.\(^{32}\) Because of the irreversible and sunk nature of these types of investments, the associated risk is considered higher than average. ACM intends to make the reduction of regulatory risk a priority issue in the period 2014-2015.

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Case 1: ACM Agenda 2014-2015

On the 5th of February, 2014, the Netherlands Authority for Consumers and Markets (ACM) launched an online consultation of its strategic agenda, in a multi-media project. ACM set out six proposed themes to focus on for the period 2014-2015, and opened up this agenda for discussion with stakeholders. On the 13th of May, the results of the project were published. The interactive project not only helped ACM gain market-specific information, but also helped to generate widespread support for its actions and advocate the importance of competition and regulation.

One of the six themes that was presented focused on investments in telecommunications (and energy) infrastructures. During the consultation, several parties indicated a need for more regulatory certainty with regard to the investments made in NGA networks. Although the market analysis decisions by ACM are issued every three years, the average investment horizon for NGA infrastructures covers a much longer period. ACM considers it a priority to investigate possible ways in which regulatory certainty can be increased, so that more investments in NGA infrastructures are made.

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\(^{30}\) See: https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/Copy%20of%20Regulatory%20Framework%20for%20Electronic%20Communications%202013%20NO%20CROPS.pdf

\(^{31}\) Source: OPTA paper 2010: Regulation, risk and investment incentives.

\(^{32}\) Source: OPTA paper 2010: Regulation, risk and investment incentives.
3.1.2 Recommendation on non-discrimination and costing methodologies

25. In September 2013, the European Commission issued the Recommendation on non-discrimination and costing methodologies. This recommendation seeks (i) to ensure a level playing field, (ii) to establish predictable and stable regulated wholesale copper access prices, and (iii) to increase regulatory certainty.\footnote{See: http://ec.europa.eu/digital-agenda/en/news/commission-recommendation-consistent-non-discrimination-obligations-and-costing-methodologies.} The basic idea behind this approach is that when three cumulative conditions are met, there would be no need for price regulation of NGA wholesale inputs. These conditions are: (1) non-discriminatory access is sufficiently guaranteed through equivalence of inputs, (2) economic replicability of retail offerings of the access providers is guaranteed through a margin squeeze test, and (3) the NGA provider faces a competitive constraint from the retail market. The pricing flexibility for NGA wholesale inputs is expected to have a positive effect on investment incentives for NGA networks.

26. The approach ACM has taken up to now in order to incentivize investment in fiber networks differs to a certain extent to that of the European Commission. Instead of focussing on conditions under which access providers can be given pricing freedom, subject to a margin squeeze test, the focus of the current approach of ACM lies on increasing regulatory certainty by committing to a long term tariff cap. This regulation allows the investor to generate a higher return (which is only adjusted in the case of excessive returns), and allows some risk-reducing measures in the pricing structure. These measures are intended to mitigate the (regulatory) risk associated with investments in fiber, which is expected to affect investment incentives positively while ensuring effective competition.\footnote{Source: OPTA paper, 2010: Regulation, risk and investment incentives.}

27. ACM believes that a margin squeeze test could limit the incumbent more in its investments than a tariff cap. Tariff caps are important for entrants, because they contain the largest cost component of their business case. Uncertainty about these tariffs would eventually limit the large investments that entrants have to make for the unbundling of fiber networks, which is not in the interest of consumers.

3.2 Merger cases in the telecommunications sector

28. In order to ensure effective competing networks, mergers and acquisitions need to be assessed with respect to their effects on competition. The competition department of ACM plays an important role in this. In past years, several mergers in the telecommunications industry were eventually cleared, some were withdrawn (KPN/CAIW)\footnote{See: http://globalcompetitionreview.com/news/article/31661/telecoms-deal-abandoned-phase-ii/.} or amended due to competition concerns (KPN/Reggefiber).

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<th>Case 2: KPN/Reggefiber</th>
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<td>In 2008, ACM approved (with remedies) the joint venture between KPN and Reggefiber.\footnote{Source: NMa Case 6397 KPN/Reggefiber, 19 December 2008.} Reggefiber is a relatively new player in the Dutch telecom market. It was set up by a construction company in order to start building optical fiber networks. The planned joint venture would combine Reggefiber’s expertise in building fiber networks with KPN’s large customer database and thereby speed up the expansion of the fiberglass network. This is advantageous to the consumer. Because of the possible dominant position the joint venture would have on the markets for access to fiber (and copper) networks, ACM’s approval was made conditional on several remedies.</td>
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ACM decided to impose behavioral remedies, in the absence of possible structural remedies. The conditions imposed on the joint venture were similar to the existing regulation of the copper network. Specifically, KPN and Reggefiber were obliged to provide other telecom companies non-discriminatory access to the joint venture’s network, to provide information about the roll-out planning to (potential) customers, to keep the joint venture separate from its parent companies and to be transparent about its operations. Furthermore, a price ceiling was imposed. The aim of the price ceiling was to prevent the joint venture from raising prices in reaction to the reduced competition. It was important to set these price ceilings sufficiently low so that other operators than KPN could set up a business case for offering fiberglass services to consumers. However, the price ceilings could not be set too low because that would damage the incentives for investment. This is a practical example of the trade-off between stimulating competition and encouraging investments.

On the 5th of February, 2014, the planned acquisition of Reggefiber by KPN was notified. This acquisition will produce a shift in the control structure in Reggefiber (providing KPN with full ownership), thereby rendering the 2008 conditions inapplicable. That is why ACM decided that further investigation is needed in the 2nd phase to see whether new conditions ought to be imposed. Crucial for ACM is – amongst other issues – to investigate whether other companies that wish to use KPN’s fiber-optic network could be excluded by KPN or whether KPN might be in a position to impose restrictive conditions as a result of the merger. Within ACM, a specialized team of telecom and competition officials is now working on the case.

29. This year, UPC and Ziggo, the two largest cable operators in the Netherlands, announced their plans to merge. The merger is currently being reviewed by the European Commission. On 8 May, 2014, the European Commission decided that an in-depth investigation is needed to assess whether the proposed acquisition is in line with the European Commission Merger Regulation. Besides expressing concerns at the wholesale level, the European Commission takes into account that the transaction could reduce existing competition in the retail market and increase the likelihood that the remaining competitors would coordinate their competitive behavior.

30. If approved, the UPC/Ziggo merger could create a competitor in broadband of similar size as KPN, which could change the telecommunications landscape in the Netherlands. This can also affect the market analysis decisions. Among the investigated theories of harm in the market analyses by ACM is the possible existence of a collective joint dominance by KPN and the merged entity.

3.3 Consumer protection

31. Businesses should make sure that consumers get value for their money, and that they constantly adjust their offerings to meet the needs of their customers. ACM sees a key role for consumers, and it therefore informs them about their rights through the consumer information portal ConsuWijzer. By running awareness campaigns, providing information, and offering tools, ConsuWijzer ensures that consumers are armed with enough knowledge to take on that role. Below are two examples of ACM’s consumer protection measures in the broadband industry:

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41 See: http://www.consuwijzer.nl/.
Case 3: Switching barriers in markets for consumers and businesses

In 2012, ACM cooperated with the Ministry of Economic Affairs to set up a protocol with self-regulatory agreements in order to ease switching behavior for consumers and businesses in broadcasting services. A similar protocol already existed for voice and internet. The 2012 protocol determines that the receiving provider is in charge of the switching process for consumers. At the moment, two self-regulatory exercises are foreseen. The first concerns triple play offers. Early in 2014, the switching service became operational for these triple play offers. For the coming years, providers have agreed to further extend the service to all telecom bundles. The second concerns switching opportunities for business consumers. ACM and the Ministry requested providers to introduce the switching process for business voice services.

Case 4: Transparency obligation for fiber optic providers

In December 2013, ACM urged providers of fiber optic services to improve their information to consumers, and to make their contracts clearer. Following media reports and consumer complaints, ACM in the summer of 2013 asked all providers of fiber optic services to provide information about their contracts and noticed that not all contracts complied with the rules. In some geographic regions, where fiber optic networks are planned to be created, concrete service start dates are often uncertain. ACM wants providers to properly inform consumers that take out a contract for fiber optic services, about the conditions that apply to their contracts. Providers must inform those consumers better in the run-up to the service start date about the progress of the fiber optic network’s development.

4. Conclusion

Investments in Next Generation Access networks are considered important for economic growth. The Netherlands is a leading country with regard to the roll-out of NGA networks and appears to be well on schedule for realizing the goals set out in the European Commission Digital Agenda for 2020. The most important role for ACM is to eliminate any barriers for market-driven investments in broadband networks. In the Netherlands, an important driver for investment is the presence of two competing telecommunications infrastructures. This creates a climate where almost all investments in broadband are covered by private funding. The most eminent issue for ACM in the future is how to improve the current regulatory system in order to provide more regulatory certainty and further facilitate investments in NGA networks. By means of regulatory intervention, competition oversight, and consumer empowerment, ACM aims to create optimal conditions for investment in NGA networks, in the interest of consumers.
