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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels,  
C(2008)

Draft

**COMMISSION RECOMMENDATION**

**of [...]**

**on regulated access to Next Generation Access Networks (NGA)**

**This is a draft document which does not necessarily represent the official position of the European Commission.**

Draft

## COMMISSION RECOMMENDATION

of [...]

on regulated access to Next Generation Access Networks (NGA)

(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive)<sup>1</sup>, and in particular Article 19(1) thereof,

Having regard to the opinion of the Communications Committee,

Whereas:

- (1) The development and upgrading of high-speed networks based wholly or partly on fibre optical cable is a desirable development which will enable the provision of innovative and better broadband services. Broadband is a key Community objective for the further development of the European economy and there is therefore a need to make the transition to fibre-based access networks in an efficient but timely manner. National Regulatory Authorities (NRAs) are developing regulatory responses to some of the questions raised by this transition. Already some NRAs have adopted a very specific set of obligations concerning infrastructure sharing (specifying processes for duct access, surveying, ordering with a complete reference offer in place), while others have specified only very general obligations to grant access without specifying details. It is therefore important to provide guidance in this context, and to prevent undesirable divergences of regulatory approaches which could harm competition and undermine the development of the electronic communications single market.
- (2) According to the Commission Recommendation 2003/311/EC of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services<sup>2</sup>, NRAs should, in defining relevant

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<sup>1</sup> OJ L 108, 24.4.2002. Directive as amended by Regulation (EC) No 717/2007 (OJ L 171, 29.6.2007, p. 32).

<sup>2</sup> OJ L 344, 28.12.2007.

markets appropriate to national circumstances according to Article 15(3) of the Framework Directive, analyse the product and service markets identified in the Annex to that Recommendation. This Annex identifies inter alia markets "4. Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location" and "5. Wholesale broadband access" (hereinafter referred to as "Market 4" and "Market 5" respectively).

- (3) There are a number of possible scenarios for future Next Generation Access (NGA) network roll-out, and competitive outcomes are likely to vary both between and within Member States. Fibre roll-out will, at least in the short and medium term, have limited geographic coverage. In addition, fibre will often be deployed in parallel with the copper circuits in the network of the Significant Market Power (SMP) operator ("overlay"). Geographic variations in network competition may be more pronounced as a result of these factors and should be incorporated in the NRA's analysis. Since network roll-out is only commencing, caution should be exercised in prejudging the extent of network competition.
- (4) The overall objective of this Recommendation is to foster the application of consistent regulatory remedies to SMP operators throughout the EU in Markets 4 and 5 regarding access to "NGA" networks or in other markets pertaining to NGA that NRAs may identify as not being effectively competitive. Such a consistent approach is required in order to provide regulatory certainty to investors and foster investment and innovation for the benefit of all parties involved.
- (5) Mandatory access conditions including, if applicable, price controls should reflect the characteristics of different assets (existing or new ducts, for example) of the concerned electronic communications networks and services providers, such as asset lifetimes and levels of risk in terms of uncertainty of demand and technological obsolescence. Article 12(2)(c) of Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities, requires NRAs to take into account the initial investment by the facility owner, bearing in mind the risks involved in making the investment, when imposing access obligations. Access conditions should thus in some cases reflect historic costs and in other cases the value associated with the new investment. When an NRA calculates the costs of access to new infrastructure elements mandated under the Access Directive<sup>3</sup>, it is appropriate to allow a reasonable return on the capital employed which should incorporate, as appropriate, a project-specific risk premium.
- (6) NRAs need to ensure that there is an appropriate migration path put in place which allows alternative operators to adapt to the new network developments. In particular, information should be shared in a timely fashion where alternative operators have undertaken investments to connect to the local loop of the SMP operator. SMP obligations are not undone by network topology changes as such and SMP operators may need to design elements of their new networks with third party access seekers in mind or else maintain their existing access offers longer than anticipated.

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<sup>3</sup> OJ L 108/7 24.04.2002.

- (7) The existing regulatory framework places emphasis on the role of network infrastructure competition. The purpose of imposing access obligations regarding NGA is to ensure a level playing field on the corresponding electronic communications retail markets. In a Fibre to the Home (FTTH) context, this objective can in principle be achieved subject to economies of density and scale as long as equivalent access is provided by the SMP operator to the relevant passive elements of its legacy network. However, technological or economic feasibility may limit the extent to which such duplication is possible. In addition, duplication of infrastructure should be avoided where it is impractical or undesirable, such as in-building wiring.
- (8) Where operators deploy fibre networks, the use of concentration points is generally a crucial element of the network topology. Concentration points are the first point at which individual end-user connections are brought to a single point in the network. Access to such concentration points can be crucial for the viability of network competition. In this regard, NRAs should seek that negotiated agreements are reached between SMP operator and alternative operators.
- (9) In a Fibre to the Node (FTTN) roll-out, all existing SMP obligations in relation to Market 4 should not be undone by changes to the existing network structure or topology. As fibre replaces copper, the traditional architecture of the copper access network changes. Where competitors have equipment collocated at the SMP operator's sites, they will need a reasonable transition period to decide on their investment and business strategy to cope with the changes. Accordingly before an SMP operator removes existing infrastructure to realize cost savings, NRAs should ensure competitors can continue to provide services by means of a proper migration path. NRAs should ensure that appropriate transitional arrangements are in place, with a view to enabling alternative operators to adjust their business strategies to the changed network structure.
- (10) NRAs should ensure that the street cabinet itself facilitates competitive access and that all necessary ancillary services (e.g. power supply) are available in the reference offer with appropriate pricing provisions. Sub-loop unbundling together with backhaul products should also be adequately specified in revised reference offers to allow continuity of existing competitive offerings.
- (11) Where SMP continues to be found on Market 5, there should be consistency concerning the remedies that are imposed. Virtual access remedies may evolve from current bitstream products to something which is more flexible and which better reflects the technical capabilities of the new networks. The product market that makes up Market 5 as defined in the Recommendation on Relevant Markets is unlikely to change as a result of a change to the network technology. However, NGAs are likely to allow the development of new retail services outside the defined Market 5 to evolve. Recital 7 of the Recommendation on Relevant Markets states that "newly emerging markets should not be subject to inappropriate obligations, even if there is a first mover advantage in accordance with Directive 2002/21/EC. Newly emerging markets are considered to comprise products of services where due to their novelty, it is very difficult to predict demand conditions or market entry and supply conditions and consequently difficult to apply the three criteria test."

- (12) The application of the principles of this Recommendation is without prejudice to the duty of the Member States and of undertakings to comply fully with the Community competition rules.
- (13) This Recommendation is without prejudice to further measures that Member States adopt pursuant to the objectives of Article 12 of the Framework Directive to foster infrastructure sharing,

HEREBY RECOMMENDS:

#### *General Principles*

- (1) This Recommendation concerns regulatory remedies imposed on operators designated by their national regulatory authority as having SMP as a result of a market analysis concerning access to NGAs carried out in accordance with Article 16 of Directive 2002/21/EC.
- (2) NGAs are access networks which have been substantially upgraded either wholly or in part, using existing local access infrastructures and technologies and/or using new optical fibre infrastructures, and which are capable of delivering broadband access services with bandwidths significantly above those currently widely available.
- (3) In undertaking market reviews according to Article 16 of Directive 2002/21/EC, NRAs should examine the need to define geographic markets taking into account the competitive conditions created at both a national and sub-national level by the progressive roll-out of NGA networks and the status of infrastructure competition.
- (4) Where NRAs find that one or more operators have SMP in Market 4 (including shared or fully unbundled access), they should mandate access to new and existing ducts (with associated measures and processes necessary to ensure access is effective), civil engineering works and other elements which are not active, necessary for the roll-out of competing infrastructure, and in particular of fibre, street cabinets or an optical equivalent. Building on their experience in developing procedures for local loop unbundling (LLU), NRAs should put in place the necessary business processes concerning ordering and work access to such facilities. Existing SMP obligations in relation to Market 4 will continue and should not be undone by changes to the existing network structure or topology. SMP operators should therefore be required to ensure that when they roll out new ducts, other civil engineering works and other elements which are not active, sufficient space is allowed as appropriate for other operators to make use of these facilities.
- (5) Where NRAs mandate access to existing network infrastructure (inter alia ducts and ancillary services), price controls on reference offers should be based on the existing physical capacity, the extent of depreciation of the existing facilities plus the operating costs of an efficient operator. The economic terms for such access are set out in Annex I.

- (6) Where NRAs mandate access to new infrastructure elements (inter alia ducts and ancillary services), price controls on reference offers should incorporate a project-specific risk premium to reflect any investment risk incurred by the operator. The economic terms for such access are set out in Annex I.
- (7) When analysing Market 5 in an NGA context, NRAs should maintain their current product market definition including any chain substitutes.
- (8) A consistent regulatory approach should apply over successive review periods to any access remedies and price obligations placed on SMP operators as a result of reviews of Markets 4 or 5.

#### *Transparency*

- (9) SMP operators should be mandated to make reference offers for all relevant inputs consistent with the provisions of this Recommendation. The reference offers should be put in place within six months of the imposition of this obligation. Inter alia, such reference offers should set out conditions for access to ducts, other civil engineering works and other elements which are not active, necessary for the roll-out of competing infrastructure and in particular of fibre. In this context, the SMP operators should provide information regarding, in particular, duct location and capacity with processes for collection and distribution of such information as specified by the NRA according to market needs. NRAs should specify in the reference offer appropriate ex ante price controls on all necessary inputs referred to above in this article. The price controls for the usage of ducts, other civil engineering works and other elements which are not active, should be based on the methodology set out in Annex I.
- (10) NRAs should require the SMP operators to provide interested parties with appropriate information concerning its future network modification plans to the extent necessary for planning and coordination of the access seeker's investments and NRAs should define the format and level of detail of such information.
- (11) NRAs should facilitate and encourage build-and-share projects between SMP operators and other alternative providers at the time of new investments to replace or establish cables, ducts and other facilities.
- (12) NRAs should promote fibre deployments wherever new electronic communications networks are set to be built rather than copper-based deployments. NRAs should revise regulatory obligations where appropriate to avoid the unintended effect of forcing operators to deploy copper in addition to fibre.

#### *FTTH (Fibre to the Home)*

- (13) Where operators deploy FTTH, NRAs should facilitate cooperation regarding the roll-out and sharing of NGA infrastructure within buildings in order to enable end-users to have competitive choice.

- (14) Where alternative operators have access to ducts, other civil engineering works and other elements which are not active and deploy their own fibre to the building or to the vicinity of the building, the NRAs should analyse carefully the SMP operator's network architecture and determine where the concentration point of the terminating segment of the access network, including inside-building wiring, should be for the purpose of granting access. In making such a determination NRAs should take into account the fact that multiple physical access deployments may be impractical or undesirable within buildings and that any concentration point will need to host a sufficient number of end-user connections. Physical access to the fibre sub-loops should be mandated as a remedy in Market 4 at the SMP operator's concentration points. In this context, NRAs should consider whether specific interfaces are required to ensure efficient access. Such access should be provided according to the principle of equivalence as set out in Annex II.
- (15) Where SMP operators deploy fibre to the home, NRAs should impose further physical access obligations (access to unlit fibre) beyond access to ducts, other civil engineering works and other elements which are not active, where access to this infrastructure is technically or physically impossible or where it is not economically viable for a sufficient number of operators to ensure effective competition. In such circumstances, where the SMP operator has deployed a fibre network, access should be granted at the concentration point which allows access to unbundled fibres where it is economically viable. Directive 2002/19/EC, Annex II sets a minimum list of conditions that must be part of the reference offer for LLU. The existing LLU reference offer should be complemented to take account of such changes. Where a full revision of the reference offer will take more than 6 months, NRA should put in place interim measures as appropriate.

*FTTN (Fibre to the Node)*

- (16) Existing SMP obligations in relation to Market 4 will continue and should not be undone by changes to the existing network structure or topology. Where an SMP operator intends to replace part of its existing copper access network with fibre, NRAs should seek to ensure that an agreement is reached between the SMP operator and access seekers within a specified deadline on an appropriate migration path from the prevailing access remedies to access under the new network structure. In determining the specific obligations such as the timing and technical functionalities to be maintained over copper during the transition period, the NRA should explicitly assess the implications for competition of decommissioning the copper network.
- (17) Where an SMP operator deploys FTTN, SMP operators should be required to make a reference offer for sub-loop unbundling and NRAs should impose appropriate ex ante price controls on all inputs, including ducts, other civil engineering works and other elements which are not active, which are necessary to ensure effective competition, so that the remedy is viable.
- (18) NRAs should ensure that co-location can take place either at the street cabinet itself or near the street cabinet (distant co-location), and that access seekers



have adequate access to power supply and other necessary enablers of co-location. NRAs should take, where necessary, measures pertaining to the adequate size of street cabinets in advance of the NGA deployment as well as appropriate cost-sharing arrangements.

- (19) Access measures, such as sub-loop unbundling, should be supplemented by appropriate ancillary remedies ensuring their effectiveness and viability, such as non-discriminatory access to facilities for co-location, or in their absence virtual co-location.
- (20) NRAs should ensure that access to sub-loops is supplemented by appropriate backhaul measures. NRAs should enable mandatory access to ducts and street cabinets and sharing of civil works to enable infrastructure-based competition. Such access should be provided according to the principle of equivalence as set out in Annex II.
- (21) NRAs should ensure that the launch of new services by the SMP operator on its NGA does not create harmful interference with the broadband services offered by alternative operators making use of unbundled loops.
- (22) Access products should be designed so as to facilitate migration from FTTN to FTTH for all parties.

*Wholesale Broadband Access (including bitstream access and other forms of virtual access )*

- (23) Where SMP is found on Market 5, wholesale broadband access remedies — in the context of the deployment of both FTTH and FTTN — should be maintained for the existing services and chain substitutes which constitute Market 5. Unless there are clear indications of a break in the chain of substitution as compared to current product markets, services provided over NGA networks should be considered as incremental upgrades and therefore not treated as new markets. Inappropriate wholesale obligations should not be imposed where, based on clear and adequate justification, an NRA finds that a service provided over NGA networks constitutes a newly emerging retail market.
- (24) When mandating wholesale broadband access, NRAs should mandate the provision of those wholesale products that best reflect the technological and commercial capabilities inherent in the new infrastructure so as to enable alternative operators to compete effectively. NRAs should ensure that the pricing of wholesale broadband access products based on fibre for Market 5, and more broadly in cases where the relevant wholesale inputs satisfy the three criteria test, is consistent with the prices charged for physical access products.
- (25) This Recommendation is addressed to the Member States.

Done at Brussels, [...]

*For the Commission*

[...]

*Member of the Commission*

## Annex I

### **Pricing principles for duct usage and the usage of other civil engineering works and other elements which are not active.**

Price controls should be based on the principles and specific rules set out below.

#### 1. General principles

All usage prices for ducts, other civil engineering works and other elements which are not active, should be based on a volume measure for physical capacity used (such as  $m^3$ ).

Usage prices for ducts, other civil engineering works and other elements which are not active, should not be bound by the principle of geographic averaging in the presence of substantial cost differences between various areas.

#### 2. Pricing of existing ducts, other civil engineering works and other elements which are not active

The usage price for existing ducts, other civil engineering works and other elements which are not active, should be based on cost estimates contained in the regulatory accounts of the SMP operator. These cost estimates should be historical costs minus depreciation, or, where this information is not available, current costs minus depreciation. Where these are not yet included, a proportionate share of the common costs of an efficient operator should be added to these cost estimates.

#### 3. Pricing of new ducts, other civil engineering works and other elements which are not active (Greenfield projects)

The usage price for new ducts, other civil engineering works and other elements which are not active should be based on costs plus a project-specific risk premium to be included in the costs of capital for the investment risk incurred by the operator.

The risk premium should be estimated according to the methodology set out in section 7 of this Annex.

#### 4. Pricing of ancillary services

The pricing of ancillary services (such as power supply in street cabinets) should be calculated on the same basis as paragraphs 2 and 3 above as appropriate depending on whether the service exists or is new.

The access price of ancillary services should be consistent with the price implied by the SMP operator's other wholesale products (e.g. local loop rental). An access seeker should be able to assemble a composite LLU product at a price which is not higher than the wholesale price charged for LLU.

#### 5. Pricing of physical access alternatives (normally from a concentration point to the home)

Where access to alternative physical remedies such as mandated access to unlit fibre (passive access) is imposed on an SMP operator, access pricing should be cost-based and include a project-specific risk premium in the costs of capital for the investment risk incurred by the operator.

The risk premium should be estimated according to the methodology set out in section 7 of this Annex.

A risk premium should not be applied in the case of fibre backhaul from the street cabinets to the MDF or equivalent in an FTTN scenario. Such a scenario is considered in this context as a modernisation of the copper-based network, which should not encompass a higher risk remuneration than other modernisation and maintenance expenses.

#### 6. Costs of access supply

The NRA should in addition estimate any specific access costs, which consist of:

- a) capital expenditure to accommodate the ordering and provisioning of access to ducts and other elements;
- b) operating and maintenance costs for IT systems; and
- c) operating costs associated with wholesale product management.

These costs should be allocated on a proportionate basis.

#### 7. Risk premium

The return that is allowed ex ante on equity capital to finance NGA networks should strike a balance between providing adequate incentives for companies to invest (implying a sufficiently high rate of return), while at the same time promoting efficiency and sustainable competition and maximising consumer benefits (implying a rate of return that is not excessive). In order to achieve this balance, regulated returns should compensate companies for the relevant (i.e. project-based and non-diversifiable) risks they face when making the investment.

The return that is allowed on equity capital (hereinafter the "required rate of return") should be based on a concrete pricing model built on realistic assumptions and rigorous implementation through an objectively verifiable methodology. The Capital Asset Pricing Model (CAPM) is an adequate instrument to calibrate such required rate of return. The CAPM equates the required rate of return to the sum of the risk-free rate and a risk premium, where the latter is defined as beta times the market risk premium. Other methods could be used if they are fully justified as meeting the same quality standards.

The required rate of return should be set bearing in mind the risks involved in making the particular investment. Systematic risk, i.e. risk that cannot be diversified away, should be estimated by recourse to regulatory precedent or by direct statistical and financial comparator methods such as the equity beta from firms outside the electronic communications sector providing comparable services (e.g. media companies).

In the context of the CAPM model, the required rate of return should be derived considering the potentially high measure of systematic or beta risk associated with the investment in question. One could thus expect that the required rate of return (and hence weighted average cost of capital or WACC) related to undertaking NGA investments will exceed that of typical utility and telecom companies. From this perspective, note that the nominal pre-tax WACCs for fixed and mobile operators have been roughly 8 to 12% in recent years depending on the Member State.

Market developments which imply that additional investments involve a different systematic risk will lead to an adjusted rate of return (and WACC) for those further investments.

The calibration of the revenue streams that will allow companies to achieve the WACC should take into account all dimensions of the project-specific capital employed, including appropriate labour costs and building costs, the anticipated efficiency gains and the terminal value of the assets, in accordance with recital 20 of the Access Directive (2002/19/EC).

## **Annex II**

### **Application of the principle of equivalence**

In order to create a level playing field among entrants and the incumbent for the provision of NGA-based services, regulation should require the incumbent to provide access to its passive infrastructure under the same conditions, be it internally or externally.

#### **1. Equivalence in terms of asset information**

- a) Information on available infrastructure: location of the ducts and other physical assets (e.g. manholes), available space in ducts, other civil engineering works and other elements which are not active and in street cabinets;
- b) Information on access points: network topography, available connection in street cabinets, location of concentration points and list of connected buildings.

#### **2. Equivalence in terms of provisioning times**

The NRA should require the SMP operator to put in place a system to record the provisioning time of the various passive elements needed internally by their retail arm to provide NGA services. SMP operators should ensure that the access seekers can obtain the relevant passive inputs within the same time.

#### **3. Equivalence in terms of service management**

The NRA should ensure that requests for information, operation and maintenance by the access seeker should be processed as fast as equivalent requests by the retail arm of the SMP operator.

In order to ensure equivalence in terms of service management, precise quality of service indicators should be defined together with target service levels. Such indicators should include time limits for replying to requests for information on availability of infrastructure; time limits for replying to a request for feasibility of use of ducts, other civil engineering works and other elements which are not active, manholes, street cabinets or concentration points; a measure of responsiveness to handle requests for maintenance; and the timeliness of intervention operations to be carried out by the access seeker. Regular reports should be provided to the access seekers, accompanied by appropriate compensation in case of non-compliance with the agreed service levels.

#### **4. Service Level Agreements**

The calculation of the provisioning delays and the other quality of service indicators should be performed at regular, fixed intervals. Quality of service reports shall be submitted in due time to the access seeker. The NRA should ensure that the SMP operators commit themselves to adequate compensation in case of failure to comply with target service levels.