Contribution of France Telecom Orange Group to the public consultation of the European Commission on a Draft Recommendation on regulated access to Next Generation Access Networks (NGA)

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Executive summary

The Commission's draft Recommendation proposes guidelines to foster the application of consistent regulatory remedies throughout the EU in markets 4 - wholesale (physical) network infrastructure access at a fixed location - and market 5 - wholesale broadband access.

The Orange France Telecom Group (hereinafter "OFTG") welcomes this initiative taken at a time where many European governments are developing plans to extend national digital coverage. The Commission is addressing a topic of the utmost importance not only for the telecommunication industry but also for the entire European productivity.

Broadband in Europe has reached maturity and, in the vast majority of countries, an efficient level of competition. Another story is about to start on NGA deployment where fibre networks such as FTTH are starting to be deployed with at least as many alternative operators investing in fibre as incumbents.

The draft Recommendation intends to create regulatory certainty throughout Europe and to set up guidelines fostering the necessary heavy investments for the emergence of a new NGA market benefiting overall society.

As will be explained in more detail in this submission, OFTG considers that the Recommendation should respect the principle of technological neutrality and propose a proportionate and gradual set of remedies. In this regard, the draft Recommendation should duly consider graduation of remedies according to the relevant geotypes in line with the approach adopted by the Commission in its recently proposed State Aid Guidelines. The draft Recommendation should further adopt a consistent approach when considering new forms of contracts and the use of margin squeeze test. It should also refrain from attaching regulatory consequences to specific forms of co-investment and leave the definition and forms of such co-investment to market forces.

Context and challenges of the draft Recommendation

The draft Recommendation proposed by the Commission intends to provide a framework for national regulators' remedies in the context of the rollout of NGAs. The objective of the draft Recommendation is both to provide legal certainty to support widespread availability of new fibre infrastructure for very fast broadband internet services and to secure competition at the deepest level that is effective and sustainable

In the spirit of the Framework Review, OFTG supports the goal of infrastructure competition taking into account all the uncertainties related to the nascent NGA environment. Infrastructure competition can be achieved on significant parts of the EU territory and this form of competition is the most sustainable.

The importance of the draft Recommendation and the regulatory options it proposes should not be underestimated in this context. Investors need to have legal certainty. An investment of around € 300 billion (estimation of the required investment for the

deployment of NGA in Europe) will not be made if there is no appropriate regulatory environment. This is even more so when considering the cumulative effects of the different regulatory requirements regarding NGA architecture that are considered in the draft Recommendation. The current draft is biased against efficient technologies such as mono-fibre and PON and may as a result massively increase the overall investment cost.

Beyond legal certainty, however, investors also need certainty on an appropriate regulatory environment. Such environment recognizes that expected financial returns are a necessary precondition for private investment. It further accepts that access seekers should not have to consider access services as substitutes for their own investments or risks that any market player needs to assume. Unlike the copper networks, NGA networks have not been deployed under a monopoly – they still need to be deployed and private investment will be necessary to make such deployment possible. Adopting a draft Recommendation that essentially amounts to a "copper 2.0" regulation is therefore inappropriate. Contrary to the former version of the draft Recommendation, the present draft clearly fails to promote or even recognize the existence and sustainability of infrastructure competition.

[confidential]

Remedies affecting network deployment

Some of the remedies which the draft Recommendation considers that NRAs "should impose" (in an unusually prescriptive language for a "Recommendation") may well put a break on NGA investments. The same goes for some of the most unusual statements of the draft Recommendation imposing directly or indirectly very specific options of networks architectures, the impacts and efficiency of which have clearly not been analysed thoroughly.

The obligation in relation to the imposition of multi-fibre as network architecture is one of the "remedies" proposed by the draft Recommendation in this regard that needs to be reviewed. OFTG considers that no specific network topology or architectural solution should be mandated or even encouraged by NRAs. With regard to multi-fibre in the terminating segment, there is a general consensus that it increases the costs of deployment. OFTG has determined that multi-fibre (as compared to mono-fibre) in multi dwelling buildings can add more than 40% to the terminating segment deployment costs. These extra costs for multi-fibre increase the barriers to invest with no proved added benefit to competition. Mono-fibre in the terminating segment can be unbundled easily with no risk of discrimination between operators. Instead of insisting on imposing multi-fibre the draft Recommendation should shift its focus to the mere question of access to the terminating segment which is the true bottleneck in NGA access (whether in mono or multi-fibre architecture). As far as all market players are in a symmetrical situation regarding terminating segment roll-out, this bottleneck should be regulated through symmetrical access obligations.

The draft Recommendation also seeks to impose unbundling of the fibre line as from the so-called "MPOP" (a newly proposed regulatory concept that may not correspond to a technical reality in future network architectures). Under the proposal, this remedy should be imposed by NRAs in addition to access to ducts which raises the question of

the right (or in this case, the absence of) gradation of remedies, an exercise that should normally be left at the discretion of NRAs. This remedy further ignores the development of infrastructure competition in specific European countries (such as France) on the basis of ducts access. A better approach is to consider areas where infrastructure-based competition is economically and technically viable and, in those areas, impose appropriate remedies that address the problem at stake: either duct access or unbundling, not both. Areas where FTTH infrastructure competition is not viable, will mainly be areas where no FTTH roll-out is profitable and where public subsidies will therefore be needed to cover the fixed costs and compensate cost difference with dense areas. In areas where a single network may be profitable, which may represent a limited part of the market, a passive and transparent access by the FTTH operator should be granted.

PON technology is a very efficient technology, already in its present form and in its foreseeable technological developments. It is a key enabler for FTTH roll-out in Europe and even more so for FTTH infrastructure competition, the incremental cost of additional PON networks being very limited. It also technically allows for some forms of passive access as open and transparent than conventional unbundling for the access beneficiary, in case infrastructure competition does not materialize. However, current PON networks do not allow for end-to-end unbundled access as we know it for copper lines. The remedy of unbundling or passive access should therefore be defined where relevant, in coherence with the possibilities of PON technology which is a global standard for the deployment of NGA. In any event, any direct or indirect technical bias against PON in the draft Recommendation is extremely damaging for the prospect of FTTH roll-out in Europe.

Price remedies

With regard to price remedies, the draft Recommendation recognizes the risks involved in NGA investments and the need to allow for flexibilities around risk sharing arrangements (long-term contracts or volume discounts that can lead to lower access prices). However the proposed text still fails to tackle key issues that will necessarily emerge regarding price squeeze tests. Legal certainty is insufficient in this regard as the draft Recommendation only restates general principles used in the context of conventional price squeeze tests.

In an NGA context, it is necessary to have an appropriate balance between (1) the constraints of a price squeeze test relating to wholesale and retail levels and (2) the need for retail price flexibility allowing adequate value pricing to conciliate service take off and profitability. To find this balance, more flexibility is needed for access pricing in order to allow risk sharing arrangements that in effect decrease the fixed costs of the investor (e.g., adequate consideration of the time period for the squeeze test in view of the amortization period).

By only allowing to decrease the access price by the amount of risk reduction factor ("option value"), access prices will still be very high (too high), especially at the early stage, and thereby preventing market take-up at the retail level. The concept of risk premium is a step in the right direction in recognizing the risks of the investor and the need to remunerate such risks. It does not however address the retail price challenge. On the contrary, the risk premium only increases the risk of price squeeze, or the risk of market failure, as it raises the access fee.

Co-investment

Co-investment could be an interesting option to deploy networks in non dense areas. However, co-investment requires flexibility for contractual negotiations and a standard regulatory regime that is independent from the co-investment modalities.

In view of the above, we believe that the draft Recommendation as it stands will slow down or even stop FTTH investment on the market, for the current “SMP operators” and their competitors alike. Significant changes are thus required to make the remedies more gradual and less intrusive into the investor’s choices. Other changes stem from the need to duly consider the NGA market context and possible regulatory barriers that could be created as a result of “mechanical” and unsophisticated application of existing price squeeze tools.

I. Introduction

The Commission's draft Recommendation proposes guidelines to foster the application of consistent regulatory remedies throughout the EU in markets 4 - wholesale (physical) network infrastructure access at a fixed location - and market 5 - wholesale broadband access.

OFTG welcomes this initiative taken at a time where many European governments are developing plans to extend national digital coverage. The Commission is addressing a topic of the utmost importance not only for the telecommunication industry but also for the entire European productivity.

Broadband in Europe has reached maturity and in the vast majority of countries an efficient level of competition. Another story is about to start on NGA deployment where fibre networks such as FTTH are starting to be deployed with at least as many alternative operators investing in fibre as incumbents.

The draft Recommendation intends to create regulatory certainty throughout Europe and to set up guidelines fostering the necessary heavy investments for the emergence of a new NGA market benefiting overall society.

As will be explained in more detail in this submission, OFTG thinks that the Recommendation should respect the principle of technological neutrality and propose a proportionate and gradual set of remedies. In this regard, the draft Recommendation should duly consider graduation of remedies according to the relevant geotypes in line with the approach adopted by the Commission in its recently proposed State Aid Guidelines. The draft Recommendation should further adopt a consistent approach when considering new forms of contracts and the use of margin squeeze test. It should also refrain from attaching regulatory consequences to specific forms of co-investment and leave the definition and forms of such co-investment to market forces.

We will address these issues in more detail in the following sections.

II. Assessing the multi-fibre line approach proposed by the draft Recommendation (FTTH)

The draft Recommendation puts a wholly inappropriate emphasis on the need to mandate or favour multi fibre line deployments for NGA networks. Point 16 of the draft Recommendation that:

> *"NRAs should, in accordance with market demand, encourage, or, where legally possible under national law, oblige the SMP operator to deploy multiple fibre lines in the terminating segment".*

Recital 18 of the Draft further mentions that:

> *"Networks based on multiple fibre lines can be deployed at a marginally higher cost than single fibre networks, while allowing alternative operators each to control their own connection up to the end-user. They further give NRAs the possibility promptly and effectively to grant access where appropriate. They would therefore be conducive to long-term sustainable competition in line with the objectives of the current EU regulatory framework."*

Annex III, read in conjunction with notably points 22 and 23 and 29 to 32 of the Draft, further demonstrates its favourable bias for multi-fibre deployment. Thus, in addition to being presented as an obligation, multi-fibre line deployment is also a pre-condition for deregulation under Annex III.

In view of the definition of "Multi fibre FTTH" it is not fully clear whether the Draft's preference for a multi-fibre approach is limited to the "terminating segment" (mainly the "vertical" part of the fibre deployment) or whether it also extends to the "horizontal" part of the fibre network. However the reading of Annex III in conjunction with the definition indicates that the multi-fibre deployment is required also for horizontal segments of the network (feeder segment).

A The multi fibre line approach is at odds with the technological neutrality principle

Technological neutrality is a key principle of the Regulatory Framework (Article 8.1 of the Framework Directive). This is also explicitly recognized in the Draft which states in Recital 22 that:

> *"Obligations imposed under Article 16 of Directive 2002/21/EC are based on the nature of the problem identified, without regard to the technology or the architecture implemented by an SMP operator."*

Operators are building fibre networks with different architectures (FTTH vs. FTTN, P2P vs. GPON, mono-fibre vs. multi-fibre, etc.). As a result, it is already clear today that NGAs will come in different technologies and architectures according to the needs of each market.

Against this diversity of deployment, a situation where only one technology or architecture would be considered for NGA deployment would clearly be inconsistent with Community law, namely the principle of technological neutrality, one of the pillars of the current regulatory framework. This is even more so where facilities do not actually exist yet and where there is no justification to prefer multi fibre architecture over mono-fibre deployment.

The Recommendation should stress that NGA regulation should be strictly technologically neutral and no specific technology or network topology be mandated or favoured by NRAs. This position would be consistent with other parts of the Draft where it is clearly stated that regulatory obligations must respect technological neutrality. As point 22 of the preamble states that

> *"Obligations imposed under Article 16 of Directive 2002/21/EC are based on the nature of the problem identified, without regard to the technology or the architecture implemented by an SMP operator. Therefore the fact of whether an SMP operator deploys a point-to-multipoint or point-to-point network topology should not affect the choice of remedies."*

What is true for point-to-multipoint or point-to-point network topology is also true for mono- and multi fibre line topologies. The choice on whether or not to deploy multi fibre lines should not be dictated by NRA's nor should it affect the remedies imposed (e.g. by allowing for de-regulation on the condition of multi fibre line deployment).

OFTG has requested a more detailed legal analysis of the technological neutrality principle as interpreted in light of the draft Recommendation and the multi fibre line requirements. A legal analysis was prepared by the law firm *Freshfields* to that effect and is provided for in Annex J of this Response in the second document.

B Multi fibre is not a remedy that can be imposed under the Access Directive

In addition to being contrary to the technology neutrality principle, imposing "multi-fibre" as an obligation for SMP operators in the context of the regulatory framework, would also run against the Access Directive.

Indeed, a remedy imposing multi fibre line deployment falls outside Articles 9 to 13 of the Access Directive. Yet, as mentioned in Recital 14 of the Access Directive, the range of possible remedies under Article 9 to 13 are a set of *"maximum obligations"* that can be applied to undertakings *"in order to avoid over-regulation"*.

Other remedies can be imposed under Article 8.3 of the Access Directive but only in *"exceptional circumstances"*. When proposed, such "other remedies" must be requested by an NRA in a specific submission to the Commission and they are subject to the explicit approval of the Commission. The condition of *"exceptional circumstances"* cannot, by essence, be satisfied at an European-wide level for the deployment of NGA networks.

Thus, imposing a general European-wide "multi-fibre remedy" would be contrary to the Access Directive as also further explained in the legal analysis attached as Annex J in the second document.

C The draft Recommendation should allow for mono fibre line deployment with appropriate access regulation

The draft Recommendation should allow investors to make rational choices on deployment within the boundaries of the regulatory objectives of the framework. In this regard, a proper balance must be sought between addressing a potential bottleneck in the terminating segment and the need to motivate (or at least not discourage) large fibre deployment.

1. OFTG study demonstrates that the extra cost for multi fibre lines can amount to at least 40% of the terminating segment deployment costs

There has been some debate on the costs of deployment of multi fibre lines. Nevertheless, there is strong evidence that such deployment increases the costs of deployment. For this reason alone, the draft Recommendation should refrain from mandating multi fibre as a remedy in market 4, given that it brings no added benefit to the bottleneck issue in the terminating segment (see below).

With regard to the additional costs as such, the draft Recommendation states that they are “marginal” (see para. 19, page 4 of the Draft). The basis for this statement is unclear. It does not seem to be supported by any factual evidence that would allow for such sweeping conclusion for the whole EU territory.

As far as France is concerned, within the context of the fibre working groups (led by ARCEP), a detailed factual OFTG analysis has demonstrated that the cost incurred for the deployment of multiple fibre lines on the terminal segment is around 40% higher than the cost incurred by the mono fibre line option. In view of the importance of the terminating segment in the overall FTTH deployment, which represents 60% of the overall investment in dense areas, such extra cost cannot be discarded as being “marginal”.

As explained in more detail in Annex A in the second document, the extra cost consists of the following elements (in a hypothesis of 4 fibres for the terminating segment in a typical building for dense areas where there is infrastructure competition):

- There are 4 times more fibre in multi-fibre which means that the cable is bigger and therefore more expensive: [confidential];
- There are more connecting points to connect each household to the vertical wiring of a building. This is because it is not feasible to manage 12 household connections per connecting point for a quadri-fibre architecture like it is the case in a mono-fibre architecture: [confidential];
- It is more costly to connect an end-user: incompressible man power for soldering works for 8 fibre line connections (4 connections in the end-user’s premise + 4 connections outside the premise) instead of 2. The work is meticulous (more complicated than for copper) with a higher risk of error than with one fibre: [confidential];

- All the operators' fibres are in the same cable in the building, when at the distribution point each of them must be separated again for connection with a different dedicated cable. This again not only requires meticulous work in an often very difficult environment, but it is also time consuming and unnecessary with mono-fibre: [confidential].

To summarize: multi-fibre carries complex operations, requiring significant meticulous and incompressible manpower and more equipment than for mono-fibre.

Therefore, the deployment of extra fibre is inefficient from a cost perspective. The Draft seems to recognize this, notwithstanding its earlier reference to extra costs that would be "marginal",[1] when it states that "in a Fibre to the Home (FTTH) context, duplication of the terminating segment of the fibre loop will normally be costly and inefficient" (Recital 15)".

2. Mono fibre is at least as efficient for granting access to the terminating segment

Access to the fibre deployed by any operator in the terminating segment is needed to allow customer churn on the fibre deployed. Such access should be mandated by NRAs.

As to the possibility of effectively granting access where appropriate (Recital 18), mono fibre deployment is not less efficient. Unbundling of a mono fibre line in the terminating segment is readily performed and industrially feasible as also demonstrated in experimental cases in France.

For this purpose, NRA's should mandate access to the fibre deployed by any operator in the terminating segment thereby allowing customer churn on the fibre deployed. In an asymmetric framework, each and any operator having deployed fibre on the terminating segment could be considered to have SMP on the terminating segment as it is the case for the wholesale voice termination markets. It would be illogical indeed to impose access to the terminating segment only on operators who are SMP on a more broadly defined market 4. Alternatively, access to the terminating segment and to the fibre line therein should be imposed on the basis of symmetric access obligations. This would avoid the need for having a prior market definition as regards the terminating access segment.

Thus, while it is reasonable to impose a shared usage on the terminal segment in a market where several horizontal networks are developed at the same time, it would be unreasonable and disproportionate to impose a specific technical solution for such sharing. Sharing access on the terminating segment can be achieved either on the basis of a multi- fibre lines solution or a mono fibre line solution with a point of distribution. Other options could also be developed in the future. In such circumstances, the draft Recommendation should allow NRAs to choose the least intrusive remedy available, in accordance with the proportionality principle.

[1] Where the draft Recommendation refers to "marginal costs" one could question what percentage of over-cost is actually identified and whether these costs indeed include all the relevant cost components which according to OFTG would result in an over-cost of at least 40% (for example, do the so-called "marginal cost" include manpower costs as well as the need to put more than one or two fibre lines in each premise, with all related soldering and connecting works?).

Taking the extra cost of multi fibre lines into account and the fact that mono-fibre can lead to the same results in terms of access to the terminating segment; we believe that the draft Recommendation should be adapted so as to avoid expressing any preference for the imposition of multi fibre line deployment.

Unbundled mono-fibre would require introducing “flexibility points” in the network, in particular where feeder and terminating segments meet. Such flexibility points do not constitute an extra cost inherent to the mono-fibre solution. Indeed, mutualisation points must be introduced in any case at the meeting points between feeders and terminating segments. Moreover, flexibility points are needed in any case in the fibre local loop (a) to cope with the long term demographic evolution of population, businesses and housing which may be very important at the scale of local areas during the lifetime of an access network (b) to cope with the evolution of the penetration rate and (c) for technical maintenance purposes.

In view of the above, changes should be made to

(1) Recitals 16, 19, 26, 27, 28, 40, 43,
(2) Points 16, 21, 22, 23, 33, 36 of the Draft,
(3) in the Glossary, and
(4) in Annex III.

In all of these sections, references to multi fibre lines deployment should be removed. With respect to the issue of access to the terminating segment, the following change is proposed:

(15) In a Fibre to the Home (FTTH) context duplication of the terminating segment of the fibre loop will normally be costly and inefficient. To allow for sustainable infrastructure competition, it is therefore necessary that access be provided to the terminating segment of the fibre infrastructure deployed by the SMP operator. To ensure efficient entry, it is important that access is granted at a level in the network of the SMP operator which enables entrants to achieve economies of scale. Where necessary specific interfaces could be required to ensure efficient access.	(15) In a Fibre to the Home (FTTH) context duplication of the terminating segment of the fibre loop will normally be costly and inefficient. To allow for sustainable infrastructure competition, it is therefore necessary that access be provided to the terminating segment of the fibre infrastructure deployed by the SMP operator. **On the terminating segment the SMP operator is the first operator having deployed the terminating segment.** To ensure efficient entry, it is important that access is granted at a level in the network of the SMP operator which enables entrants to achieve economies of scale. Where necessary specific interfaces could be required to ensure efficient access.

III.Impact of the draft Recommendation on the choice of network technology in NGAs (FTTH)

The specific choice of technology by an operator willing to serve a specific geographic area or customer segment with an NGA network will be influenced by expected demand, its concentration, duct space availability and network topology such as the number of street cabinets, the length of the local loop, etc. These factors will differ among Member States or even among areas within each Member State. This difference may result in one type of technology or architecture being more efficient in one area, but not in another area. This is already clear today when existing broadband services such as IP-TV, video on demand, gaming, are being delivered via different types of networks: copper-based DSL, cable systems, broadband wireless, satellite, and mobile. This potential variety of NGA platforms, however, is not reflected in the definition of the draft Recommendation, even though it is an important element of the market analyses of NRAs.

A The draft Recommendation should not constrain the deployment of PON-based networks

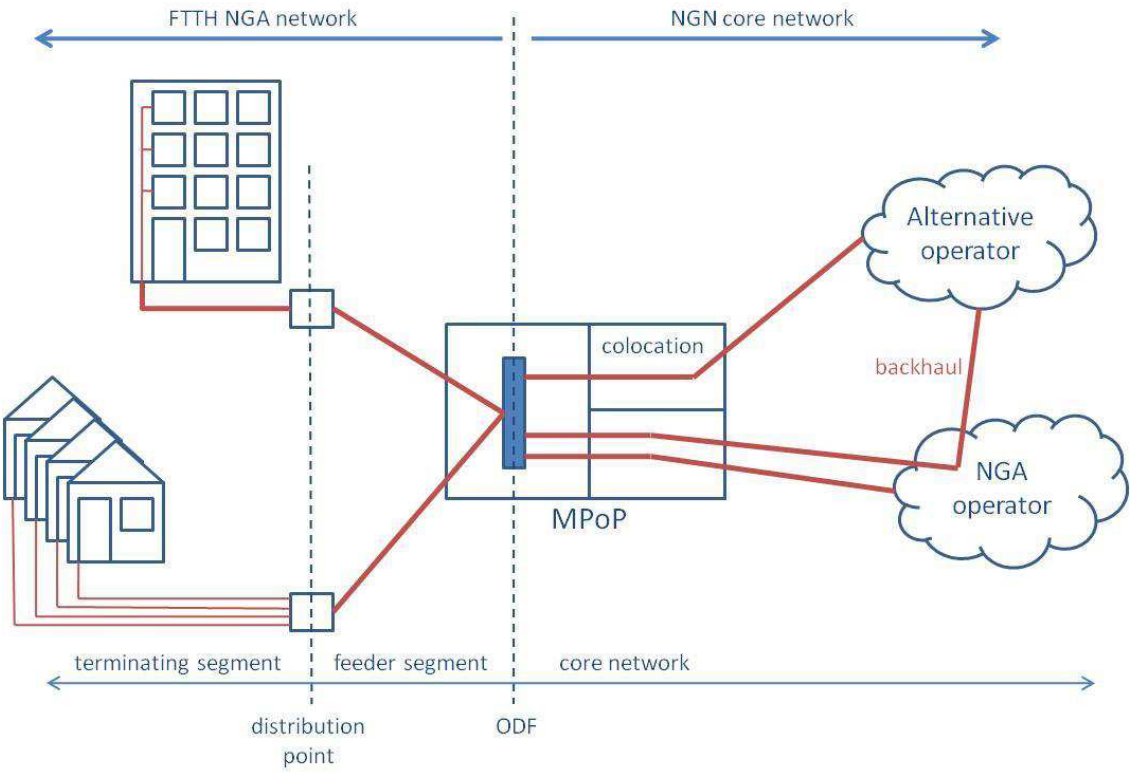
On fibre deployment, specifically, several technologies are available. In particular, the potential for technological evolution of PON technology appear very significant in the years to come, as a world-wide standard for FTTH deployment[2]). In Asia the deployment is mainly in a GPON configuration. In the USA, PON dominates VDSL in number of subscribers. In Europe GPON, P2P and VDSL coexist, however on a very limited scale comparatively.

Nevertheless, unless it is modified, the draft Recommendation contains provisions (other than on multi fibre line deployment) that will constrain the investors' choice of network technology, topology or architecture. According to the Draft, NRAs should mandate unbundled access to the fibre loop irrespective of the network architecture and the technology implemented by the SMP operator.[3] Yet, while unbundling of the "terminating segment" as from the distribution point can be appropriate and technically feasible where such segment is a bottleneck (see point 15 page 12), the unbundling of the "feeder segment" (horizontal part) is not desirable where infrastructure competition exists. Also, on industrially available GPON solutions, "copper-like" end-to-end unbundling is not feasible. However alternative passive access solutions based on dark fibre may be proposed, only where infrastructure competition cannot take place.

The cable being apart of the relevant markets, the status of cable unbundling remains unclear in the draft Recommendation.

[2] See Annex F in the second document, World's top 10 FTTx leaders per subscribers, IDATE June 2009.
[3] See Draft Recommendation, point 20.

Figure 1: NGA topology overview according to the draft Recommendation



Source: Cullen INTERNATIONAL

Imposing unbundling in the feeder segment therefore prevents or, at best, delays the introduction of PON-based NGA networks. This would be contrary to the objectives of the Lisbon Agenda and indeed put Europe at a competitive disadvantage compared to its trading peers where fibre is being deployed for NGA services on the basis of PON networks.

This competitive disadvantage will have a spill-over effect on the whole European electronic communications ecosystem: European equipment industry which is well positioned on PON technology would not be able to make business in Europe; European operators would have to use technologies specific to the European market and therefore more expensive than world-standard. FTTH roll-out will be massively delayed, if it takes place, letting European service provision industry outside the world-wide development of very high speed services.

In areas where infrastructure competition could exist, no unbundling should be imposed on the feeder segment if duct access is already available. To the extent that such duct access is not a feasible alternative (technically or economically) or in areas where infrastructure competition can not exist, an appropriate bitstream remedy could be imposed.

In any event, imposing a remedy that pre-determines *de facto* the NGA technology choice runs contrary to the Regulatory Framework's technology neutrality principle.[4]

[4] See also Freshfields Analysis attached as Annex J in the second document.

B *Advantages of PON technology for a competitive NGA deployment*

Adopting a negative bias against PON deployment (through the imposition of fibre unbundling in the feeder segment) is even more inappropriate when considering that this technology is well-suited for the development of infrastructure competition.

A passive optical network (PON) in FTTH differs from a P2P network in FTTH in that a PON network uses only one fibre to connect multiple households. This fibre is shared by users instead of being dedicated to one single household.

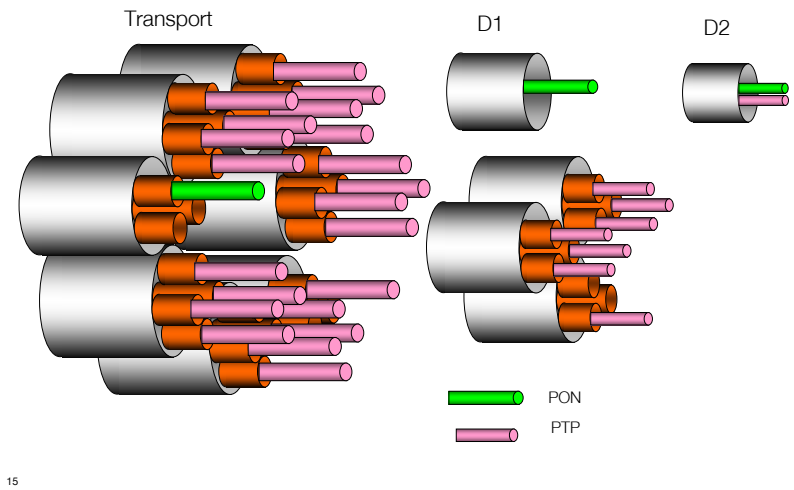
The cost per user connection is significantly higher for P2P than GPON. Moreover, the overall cost for several competing GPON networks is equal or only marginally higher than the development of a single P2P network in dense areas (about 49% of the French lines) and even for intermediate areas (about 24% of French lines).

[confidential]

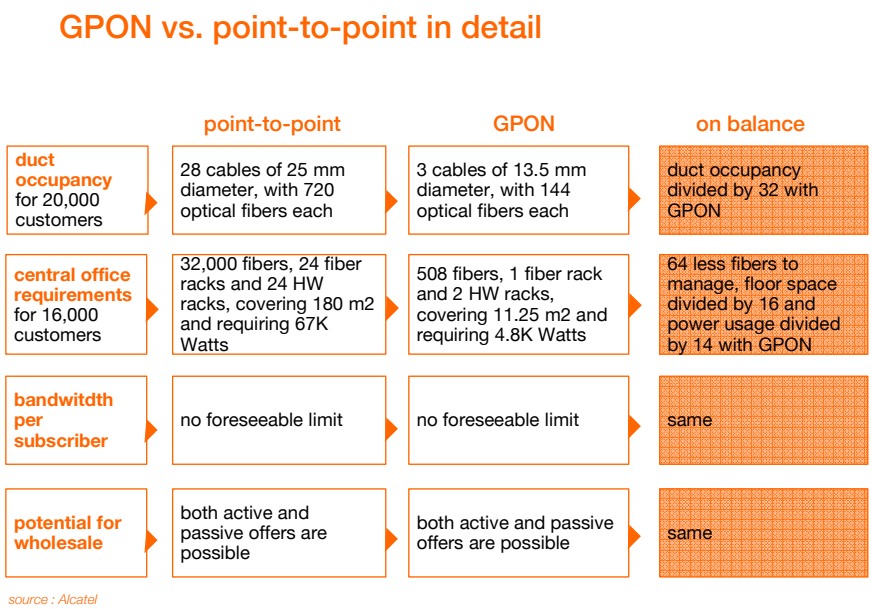
These conclusions demonstrate that GPON is a key enabler for network competition. As far as the feeder segment is concerned (horizontal part), the conclusions [confidential] also cast a doubt on the draft Recommendation's statement that multi fibre line deployment is marginally higher than mono fibre line deployment. Indeed, with approximately the same capex used for one P2P network, two or three GPON networks can be built in dense and intermediate areas.

Conversely, building several P2P networks would probably not be possible – not only because of the higher costs resulting from active equipment and fibre optic cables – but also in view of the additional civil engineering works required to host multiple P2P networks. Statistics on availability of ducts in France, as well as existing roll-out experience show that current ducts could host two GPON networks in parallel with a single P2P, if the architecture is optimised to minimise ducts occupancy. Yet this remains an open question for a single P2P networks not designed to optimise duct occupancy or for multi-fibre P2P networks. Ducts are a scarce resource and their usage must be efficient for the sake of general social welfare. From this perspective also, GPON technology is a very efficient option.

Figure 3: Occupancy rate of PON vs P2P network



D1, D2 = Distribution 1, 2



Ducts are a scarce resource the occupation of which could vary depending on operators' chosen technical options. Duct pricing should therefore be based on the actual usage of ducts on the basis of occupancy volume (in m^3).

Other well-know advantages of GPON are that it allows for flexible, progressive and scalable network deployment which is a key characteristic considering the uncertainty of demand ("tree"-based structure that can reach up to 64 different households with

one and the same fibre placed higher in the network as demands develops).[5] This flexibility is also relevant to adapt to the changes of building configuration.

Beyond the economic efficiency in relation to NGA deployment, energy consumption is also a key issue that needs to be considered in view of environmental concerns and the EU's objectives in this regard. The environmental question could be assessed in the Commission impact assessment.

Awaiting this analysis, we wish to highlight that the energy consumption of NGA is highly influenced by the use of civil work, the nature and quantity of the equipment, the building/technical blocks, the lasers etc. In this regard, the choice of technology will be a key factor to consider.

As far as GPON and P2P are concerned some data are already available:

- In the study "Energy Consumption in Access Networks"[6], the authors have analysed the relative energy consumption for each technology (P2P, PON, FTTN, WiMAX). This was determined as a function of the average access rate to each user. Their finding was that *"the most power efficient access network, for access rates below 3000Mb/s is the PON architecture"*.
- A Motorola analysis[7] on the consumption of GPON versus P2P confirms this overall finding. The study shows that the P2P power consumption for 100Mb/s per user goes from 1.7 time to 2.5 times the GPON consumption[8] (meaning for the French territory: 60MWatt for the GPON and 130MWatt for the P2P).

In view of the above, the draft Recommendation should recognize that a variety of technologies can and will be used for the deployment of NGA networks. The choice of technology is a key strategic business decision and there is no one-size-fits-all solution for NGA deployment in Europe. All solutions have their respective advantages and disadvantages depending on the relevant circumstances which must be evaluated and decided on solely by the market, as long as there is sufficient room for competition. A PON-based deployment – with a regulated access to ducts - not only allows for such competitive space but it is also a key technology for genuine infrastructure based competition. The draft Recommendation should not close the door to sustainable infrastructure competition.

C Overall potential impact of the technological "recommendations" on the costs of NGA deployment

As a general comment on sections I and II of this Response, the draft Recommendation strongly favours costly technical solutions both on the terminating segment and on the feeder segment of the fibre local loop. The draft Recommendation assumes without further analysis or data (which we are aware of)

[5] See Annex D in the second document.

[6] "Energy Consumption in Access Networks".
Jayant Baliga+, Robert Ayre, Wayne V. Sorin, Kerry Hinton, Rodney S. Tucker, ARC Special Research Centre for Ultra-Broadband Information Networks, +National ICT Australia University of Melbourne, Vic 3010, Australia j.baliga@ee.unimelb.edu.au.

[7] Motorola analysis, restricted disclosure.

[8] The results depend on the contention ratio.

that these solutions imply only "marginal" overcosts. In fact these overcosts are not marginal at all: their cumulative effects massively increase the cost of FTTH coverage in Europe: [confidential][9]

IV. The Draft Recommendation fails to adequately graduate the remedies proposed for NGA networks

In the preamble, the draft Recommendation refers to a list of alternative remedies that NRAs may impose (see Recital 21). The operative provisions of the Draft however use prescriptive language imposing upon NRAs to mandate most of the proposed remedies that are listed, among which unbundled access to the fibre loop.[10]

This mandatory language is used irrespective of the nature of the text, a Recommendation, which should not impose binding obligations upon Member States.

It is also at odds with the intention of the Commission as stated in the speech given by Commissioner Reding on June 25 2009:

> *"it should be recognized that actual deployment patterns of NGAs and market conditions are rather diverse, and that therefore* ***no single regulatory remedy*** *(let us say only bitstream, only fibre unbundling or only duct access)* ***is likely to be appropriate in all circumstances and at all stages of market development.*** *Therefore we recommend that when granting access to the last mile, NRAs should select the remedy best fitted to the circumstances at hand."* (emphasis added)

The draft Recommendation needs to be reviewed in this perspective notably on the issues outlined below.

A It is inappropriate to cumulate access to ducts and fibre unbundling remedies

The Draft states that alternative operators need to be provided with *"appropriate access products in order to continue to compete in an NGA context"* (Recital 21). The Draft then goes on to explain which remedies may be imposed in an FTTH context: access to civil infrastructure, access to the terminating segment, access to the unbundled fibre loop or wholesale broadband access.

The fact that such remedies are available should not imply that they are all mandatory for NRAs to impose upon SMP operators, however. Remedies must be based on the underlying competition problem identified by the NRAs (Article 8 of the Framework Directive). Furthermore, when there is a choice between several remedies, the least onerous remedy must be chosen, having due regard for the interaction between the remedies and the proportionality principle. Remedies imposed should also not

[9] See Annex D in the second document.
[10] See also, e.g., points 11, 15, 16, 17, 35, 39 or 48.

frustrate the objectives of long-term competition protected by competing infrastructure (see recital 19 of the Access Directive).

The Draft explicitly recognizes this, for example when it states that, in case of effective unbundling of the fibre loop, NRAs *"should normally not impose an obligation of wholesale bitstream access"* (Point 41, page 15, of the Draft).

Yet, for remedies imposed in an FTTH context, this reasoning does not seem to apply in the Draft. Indeed, point 17, page 10, of the Draft states that: *"Where the SMP operator deploys FTTH, NRAs should,* ***in addition to the above****,* ***mandate unbundled access to the fibre loop****. Such remedy should be accompanied by appropriate measures assuring co-location and backhaul. Access should be given at the most appropriate point in the network, which is normally the Metropolitan Point of Presence (MPoP)"* (emphasis added). Irrespective of the remedies mandating access to civil engineering infrastructure and access to the terminating segment, which OFTG does not dispute as a possible remedy, NRAs would also be obliged to impose access to the unbundled fibre loop. It should be noted incidentally that the notion of "MPOP" is a proposed regulatory concept for defining the point of access. However, this point of access may not always correspond to a technical reality in future network architectures.

The Draft further specifies that access to the unbundled fibre loop should be cost based (like access to civil engineering infrastructure). In so doing, the Draft fails to consider the interaction between these two remedies and actually reduces or even cancels the incentives for all categories of operators – currently SMP operators and their competitors - to invest in their own fibre network via access to ducts.

When regulatory intervention is required, it should try to avoid price regulation, as much as possible. Price regulation was reasonable when the policy problem addressed by the remedy was the opening of legacy fixed networks to competitors. However, it would actively discourage the undertaking of the substantial, high-risk investment which is required to roll out NGAs in Europe. Investors will not invest tens of billions of Euros in new networks if such investment could later be price-regulated on the basis of cost models that could evolve over time depending on a changing regulatory environment applying during a relevant period for which investments were made.

To the extent remedies are imposed cumulatively as from the outset, it is a question whether there is still an incentive for competitive fibre deployment by alternative operators in the ducts of the existing operator. It is also a question whether there can still be an incentive for fibre deployment by the incumbent operator. Indeed, if the draft Recommendation is applied, as soon as an SMP operator deploys fibre, under the Draft, such an operator will immediately be subject to unbundling at cost-based access obligations.

In this regard, the Draft also fails to consider the time factor and the sequence of fibre deployment by different players. The Draft imposes fibre unbundling as soon as the deployment starts for the "SMP operator". However, if there is potential competition as regards fibre deployment, based on objective criteria that NRAs can determine as per their market analysis, no access obligation should be imposed on fibre loops. Imposing access as soon as an SMP operator (on which market?) starts deploying its network, would put any expectation of infrastructure and coverage competition at risk.

NRAs should be able to adopt remedies that are appropriate to tackle any competitive problem at stake in an FTTH context, depending on the actual market circumstances. It should not be obliged to impose access to ducts and access to unbundled fibre loops when market conditions do not justify such a double remedy. To underline the inconsistency of such double remedy, it should be reminded that even in the case of legacy copper loop, the double remedy of ducts access and of copper unbundling have not been imposed simultaneously.

Important differences characterise the copper and NGA context. The regulator must integrate these differences in their regulatory policies and manage remedies accordingly. Fundamental principles such as proportionality and gradation should be reintroduced in the draft Recommendation.

In light of the above, without prejudice to the validity of the supposed optimal nature of the competition with four operators, we propose the following change to point 17 of the Draft:

Point 17, page 10. Where the SMP operator deploys FTTH, NRAs should, in addition to the above, mandate unbundled access to the fibre loop. Such remedy should be accompanied by appropriate measures assuring co-location and backhaul. Access should be given at the most appropriate point in the network, which is normally the Metropolitan Point of Presence (MPoP).	Point 17, page 10. **Where an operator deploying FFTH has been found to be an SMP operator following a market analysis**,~~Where the SMP operator deploys FTTH,~~ **and when access to ducts is not feasible, technically or economically,** NRAs **could**, as an alternative to the above, ~~in addition to the above,~~ mandate unbundled access to the fibre loop. Such remedy could be accompanied by appropriate measures assuring co-location and backhaul.

B As a matter of principle, NRAs should focus on the least intrusive remedy first (access to ducts), active remedies should be used as a last resort

To provide guidance to NRAs, the draft Recommendation should state clearly that regulation in an NGA environment should be based on three principles: (i) the least intrusive regulatory remedy should always be chosen, whenever possible, (ii) regulation should concentrate on access to civil works, (iii) active remedies should be used only where infrastructure-based competition is considered economically or technically unfeasible.

No regulation should be imposed when competing operators can invest in a new access network, or when they can enter into commercial agreements, providing for risk sharing. In order to verify whether this is the case, NRAs should assess - before imposing remedies - current and future demand for access, as well as the scope for civil work infrastructure development.

Where alternative civil infrastructures exist, NRAs should establish a level playing field for the roll-out of NGA networks by securing non-discriminatory access for all operators (including the incumbent) to all available ducts. Where the incumbent's ducts are the only operational solution for fibre access roll-out, imposing an effective reference offer for fully operational non discriminatory access will be justified. NRAs will have a critical role in guaranteeing that the ducts access reference offer is effective and non discriminatory on an operational and economical point of view.

Access to the NGA networks could be granted, primarily on the basis of freely negotiated terms, whenever competitive roll out of NGAs is economically or technically unviable due to difficulties in accessing, or sharing civil works infrastructures. In such cases, the viability of infrastructure competition should still be exploited as much as possible by relying on civil works.

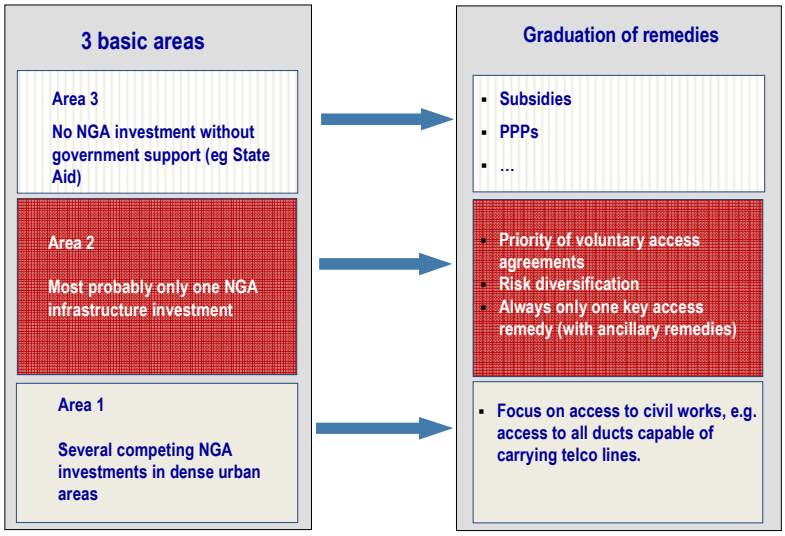
For some areas, access to ducts may not be available or the customer density may be too low to have a viable business case for more than one network. In such areas, access on commercial terms may not be agreed upon. In those circumstances, the NRA should identify the SMP operator and impose access obligations that are the least intrusive. Thus, any regulatory intervention should be limited to what is most efficient for the geographic area, in order to reduce regulatory intervention and complexity to a bare minimum whilst ensuring fair competition at the retail level.

In the terminating segment, the fibre owner will enjoy, if there are no other access means, a clear monopoly. Therefore, regulation should make sure that all competing fibre operators can access such networks, on symmetrical basis under conditions that preserve the incentives to that type of investment. As explained above, when this bottleneck is managed properly, no fibre unbundling is necessary in the horizontal part of the NGA (e.g. feeder segment).

C NRAs must be able to adopt a geographical differentiation of the remedies according to "black, grey and white zones"

Apart from being disproportionate, cumulative remedies as proposed in the draft Recommendation also negate the possible application of differentiated remedies according to the relevant zone at stake. In particular, by imposing both duct access and unbundling, the draft Recommendation fully ignores possible infrastructure competition in "black zones".

In this regard, the Commission (DG Comp) issued a consultation on draft State Aid Guidelines on Broadband. This draft refers to the existence of three zones according to the level of competition (and therefore density) in each area - black, grey and white zones are being differentiated for that purpose. A link should be introduced in the draft Recommendation between these geotypes and the remedies proposed. Indeed, just as the assessment of state aid should be differentiated according to the relevant zone at stake, remedies must also be differentiated between such zones all of which have their own competitive characteristics.



Incidentally, the analysis of OFTG shows that black and white zones will always together cover the main part of a territory. Indeed, for France, areas where one FTTH access network is a profitable natural monopoly ("grey areas" in European competition law terminology) should represent only 12% of the national access market or less [11]. This grey zone may require specific asymmetric rules applying to the owner of the single infrastructure, which may not always be the current copper incumbent operator.

V. FTTN/VDSL versus FTTH

Concerning FTTN/VDSL, OFTG welcomes the Commission's regulatory analysis of FTTN/VDSL. FTTN/VDSL is based on legacy copper assets and therefore its regulatory regime is directly derived from the copper pair regulation. In that context, the Draft correctly recognises the need for a transparent migration path when the VDSL roll-out of a SMP operator may interfere with the broadband services offered by alternative operators making use of unbundled loops. NRAs should elaborate fair solutions which preserve competition and which do not jeopardize investment and technological development of the current networks while preparing for the future sunset of the copper local loop. OFTG also insists that technical and economical replicability of retail offers of SMP operators rolling-out VDSL at the sub-loop will have to be guaranteed through passive and active remedies.

In a VDSL scenario, it seems crucial that clear information concerning the network evolution be given in due time in order to ensure replicability for alternative operators on the retail market in satisfactory conditions and avoid losses of unbundling investments. ULL access users also need a reasonable prior notice period before any MDF closure, in order to implement alternative solutions. It is vital to insure the

[11] See Annex E on the evaluation of grey zones in the second document.

required level of transparency on network roll out, so that entrants do not discover the situation at the last moment, without any possibility to adapt.

Satisfactory operational and economical transition conditions should be made available to ADSL-based alternative operators in the context of a move of the incumbent towards VDSL at the sub loop, bearing in mind that the global economic equation of the alternative operators is very sensitive due to:

- Extra technical costs caused by the technical changes due to the MDF removal,
- Lower margin in the products' offers, if only bitstream is offered,
- A lack of economic space regarding retail prices if wholesale prices are too high,
- Migration path when an SMP intends to go to FTTN/VDSL if VDSL service perturbs ADSL service or if the SMP intends to suppress MDF and copper lines.

Moreover, as shown by several studies and acknowledged by the European Commission, SLU is not an equivalent to LLU. Therefore to ensure that DSL competition is not entirely put at risk by the FTTN/ VDSL roll-out, NRAs should adopt specific obligations in such a scenario, in particular:

- A more flexible and enriched Bitstream VDSL offer allowing full technical and economical replicability of VDSL retail services proposed by the incumbent; keeping in mind that such an offer will be basically the sole wholesale offer allowing the DSL competitors to offer national DSL retail offers. As there is probably no business case for alternate operators as regards SLU, bitstream VDSL will continue to play a critical role.
- Additional ancillary obligations for SLU, in the very specific case where SLU may be technically and economically feasible.

SLU access and the need for ancillary remedies

In a SLU scenario, backhaul regulation is essential to make it an effective remedy. Duct access could not be a sufficient solution and access to dark fibre and Ethernet backhaul would also be necessary, in particular in countries where ducts have not been broadly used by the incumbent. In this context, as proposed in Annex I, cost orientation needs to be imposed for SLU and all backhaul and ancillary remedies.

The need for a stable and continued wholesale broadband access regulation

As shown by several studies, for example, in the Netherlands, in Belgium or in the UK, SLU will only be viable under very specific conditions and in some limited areas. Moreover, in some countries, it will imply that LLU disappears in several wide areas.

In such circumstances, alternative operators do not have any other choice than to "come back" to bitstream solutions, despite their past and current investments in LLU and the fact they will lose autonomy with bitstream compared to LLU. Without a regulated bitstream offer, alternative operators would therefore lose their ability to exert competition.

We agree that a 5 year period notice, as mentioned in point 43 of the draft Recommendation, would be appropriate before an MDF closure. No dismantlement should take place before a concrete alternative solution is in place.

VI. Pricing principles and risk

In Annex I, the draft Recommendation considers the possible integration of a risk premium in the WACC calculation in order to reflect the higher risk in the NGA investment. In addition, new forms of access contracts are considered based on long-term commitments or volume discounts. This is accompanied by considerations of implementing a squeeze test as a regulatory tool.

The development of a more nuanced regulatory policy around access contracts should be welcomed for the NGA context. Nevertheless, the proposals made in the draft Recommendation are still insufficient to address the complexities and paradoxes of a nascent and immature NGA market.

A The draft Recommendation needs to allow for more flexibility in both long-term access and volume discount contracts (in the event of FTTH)

The draft Recommendation recognises the risk involved in NGA investments and the need to properly allocate it between access seekers and providers in order to foster investment in fibre. It refers to mechanisms that could be used to distribute the risk between investors and access seekers, such as long-term commitments or volume discounts.

These new forms of contract either based on long term commitment or volume discounts (point 7 and 8 of Annexe I) should be welcomed. They could indeed foster secondary trading by entrants and, as a result, increase competition on the wholesale market. We are doubtful however whether a long-term contract implies that entrants would indeed *"acquire full control of physical assets"* (point 7, page 19). It is unclear why this issue - an operational issue – is addressed at all in point 7 of Annex I. We therefore suggest removing it. On the other hand, we do believe that regulation could encourage secondary trading, for example, by motivating access seekers with long term or large volume contracts to provide an offer for such a secondary market.

The draft Recommendation recognises that long-term contracts can help reduce investor's risks and it therefore rightly accepts the idea of a lower access price in the event of a long-term contract (as opposed to a higher access price for a short-term contract).

The access price reduction which the draft Recommendation envisages is nevertheless limited and indeed too constrained. The only reduction that is accepted in this regard is the amount of the *"higher risk premium reflecting the systematic risk of investment"*. Short term access contracts would therefore be priced higher only to an amount that corresponds to the *"option value* [attached] *to the flexibility of such form of access which benefits the access seeker"* (Annex I, point 7). As regards the reduced price, it would still have to be "cost-oriented", after having eliminated this risk premium.

The key question thereby remains unaddressed: what should the "cost-oriented" tariff be in an NGA context?

Beyond the issue of risk premium (which OFTG does not consider to be an appropriate solution – see section C below), it is precisely the sharing of some cost categories over a longer period that will reduce the risk. Thus, irrespective of the risk premium, the draft Regulation should also consider more flexibility for the access price in view of the underlying costs that will differ according to the long term commitments that are being made (see below section B). Capping the minimum access price as proposed by the draft Recommendation, without considering the benefits of risk sharing arrangements (e.g. via long-term contracts) on costs negates an important aspect of the access pricing issue.

NGAs imply high initial fixed costs and long term commitments made by the investors. Access contracts should reflect these characteristics, through an access price that can commercially be reduced as a result of the sharing of fixed costs.[12]

The same is true for volume discounts where several pricing models can be used. Segmented access prices could be proposed: decreasing prices on the basis of commitments linked to the urban configuration with possible increasing commitment starting from access to a city, then access to an area, then to buildings. Another solution could be volume-based charging based on the accessible interconnection points in the network.

Parties must be free to negotiate these elements in order to find the most efficient solution with the possible support of the NRA. Predetermining the possible configurations or adjustments would be inappropriate.

On volume discounts, OFTG also notes that the following statement in point 8 of Annex I lacks clarity:

> *"While the SMP operator is liable to have a significant share of the overall downstream market, in some areas the distribution of market shares between the SMP operator and alternative operators might be more balanced. A more balanced distribution would increase the likelihood of a higher risk premium which is adjusted for volume discounts resulting in higher investment and efficient competitive outcomes"*

This paragraph is too imprecise as regards the definition of the market and services that are concerned and makes unsupported presumptions which should preferably be deleted.

B Adapting the margin squeeze test to NGA circumstances to foster the market take-up

In points 7 and 8 of Annex I, the draft Recommendation specifies that both volume based discounts and long-term contracts should be subject to an NRA review which ensures that *"there is sufficient margin between wholesale and retail prices to allow for market entry by an efficient competitor in the downstream market"*.

[12] See Annex B in the second document.

Recital 27 of the draft Recommendation provides further guidance on this condition specifying that *"in the specific context of ex-ante price controls"* by NRAs a so-called *"reasonably efficient competitor test will normally be more appropriate"* than an *"equally efficient competitor test"*.

Irrespective of the flexibility that is accorded by virtue of the draft Recommendation as regards volume discounts and long-term volume contracts, the draft also imposes upon NRAs to perform a price squeeze test in relation to NGA access prices and respective retail prices. Such a price squeeze test should further be based on the Reasonably Efficient Operator (REO) benchmark instead of the Equally Efficient Operator (EEO) benchmark that has notably been used in the *Telefonica* and *Deutsche Telecom* decisions of the Commission.[13]

1. Coherence with competition law

The draft Recommendation's position in relation to the margin squeeze issue raises two possible issues of consistency with competition law: (1) the legitimate competent authority for using the squeeze test and (2) the inconsistency of the recommended methodology in view of existing case law.

On the first issue, as a preliminary comment OFTG notes that a margin squeeze is generally applied by competition law authorities to review possible abuse of dominant position *ex post*. When applying a margin squeeze test *ex ante*, however, NRAs are not assessing compliance with competition rules. In the context of the draft Recommendation, their role is to potentially regulate market 4 and 5 which are both wholesale markets. NRAs should therefore refrain from using a price squeeze test to regulate retail markets.

Retail markets are not a part of markets 4 and 5 and therefore not subject to regulation following a price squeeze test. A price squeeze test used by NRAs should only result in the regulation of the wholesale price. This is also confirmed by the Commission's "article 7" practice which states that a price squeeze used by an NRA should lead either to a reduction of the wholesale price (on the regulated market) or to an ex post competition law case.[14]

On the second issue, for the purpose of applying a price squeeze test (as regards the wholesale price level), Recital 27 of the draft Recommendation states that a REO method would be more appropriate in an *ex ante* context. This will inevitably result in cost levels being higher than if the EEO method were to be applied. It would also create a high level of legal uncertainty for SMP operators as NRAs would have full discretion on the relevant cost levels for applying a price squeeze test, irrespective of the costs of the SMP operator.

In the case of *Deutsche Telekom AG v Commission of the European Communities* (decision of April 10, 2008) the Court of First Instance recognized this explicitly. When reviewing the application of the EEO method by the Commission, it stated that:

[13] See, e.g., Commission Decision of 4 April 2007 case COMP/38.784 – Point 312.
[14] See Letter of 10 May 2007 in Cases ES/2007/0620-626: details of remedies related to cases ES/2005/0326-329, ES/2006/0336-337, ES/2006/0370. The Commission specified that the retail broadband market (which was subject to a price squeeze test) was not a part of the regulated markets listed in the Recommendation on relevant markets.

"(…) any other approach could be contrary to the general principle of legal certainty. If the lawfulness of the pricing practices of a dominant undertaking depended on the particular situation of competing undertakings, particularly their cost structure – information which is generally not known to the dominant undertaking – the latter would not be in a position to assess the lawfulness of its own activities.

The Commission was therefore correct to analyse the abusive nature of the applicant's pricing practices solely on the basis of the applicant's particular situation and therefore on the basis of the applicant's charges and costs." (paras. 192-193)

The problem of legal certainty is even more acute in a nascent market such as the NGA markets where the investing operator would not be able to take its own costs to determine prices that abide by a price squeeze test defined by the NRA. Even if parameters, imputation tests and remedial mechanisms are properly specified in advance, too much discretion would be given to the NRA under a REO test.

In immature markets, the unit costs are likely to change significantly as the volume of services provided increases. Therefore, in such environment, choosing a good parameter is even more important in order not to jeopardize the market development. NGA deployment will take years and the overall parameters of a possible price squeeze test must be based on a long term approach. The proposal of Recital 27 does not give any guarantee on the long term for potential investors.

Ex ante monitoring requires substantial quantities of confidential data, extensive ongoing modelling. Moreover since no specific assertion of a price squeeze is actually made, the tests must be undertaken on an entirely hypothetical basis. This is different from competition law practice where the context is typically crucial, and where the analysis is based on a specific factual context in relation to allegations of violations.

2. The time period for amortization should be taken into account

In an NGA context it is necessary to have an appropriate balance between (1) the constraints of a price squeeze test (at wholesale level) and (2) the need for retail price flexibility notably to allow selling at a low price for service take off. The Draft rightfully refers to the need for investing undertakings to capture demand on NGA-based products (see Recital 24). As mentioned above, it also introduces some flexibility for access prices in relation to long-term contracts and volume discounts.

The adjustment on the price squeeze issue is limited however to a possible reduction of the access price in relation to the reduction of risk for the investor that results from the long-term or volume contract. In doing so, it falls short of recognizing the most important factors that could legitimately reduce the access prices beyond the risk value factor: time and amortization periods for NGA assets, especially in an FTTH context.

An appropriate consideration of the relevant time period for amortization of the relevant assets allows for an assessment of the profitability of a product over a period of time that runs parallel with the amortization of such assets. Amortization periods on

fibre are typically around 15-20 years as the network will probably cover usages developed over such a time period. Other assets related to the network will have different amortization periods, for example: software plate-forms, street cabinets, infrastructure equipments, etc.

For determining the costs that an access seeker is paying in the context of long term and/or volume commitments, a time period consistent with the relevant amortization periods should be considered. If not, access prices based on shorter periods would inevitably lead to wholesale prices or underlying costs that are too high in comparison with retail prices allowing for service take-up (price squeeze).

By considering the accurate amortization periods, NRAs will be able to strike a balance between the need to stimulate both retail take-up and network investment. To some extent, this is also recognized in the most recent ERG report on the application of margin squeeze tests to bundles[15] where it is stated that:

> *"In the case of markets with non stable revenues and costs (for example non mature markets) the static test may not be the best choice. This is because it does not take into account the reasonable short term losses accrued in the launch period of the service and does not consider the risks associated with investments that the company may incur in marketing the offer."* (paragraph 71).

Beyond the investment in marketing referred to by the ERG, short term losses should also be considered in the light of infrastructure investments.

With respect to the above, Annex I point 7 and point 8 would have to be amended in order to allow reduced wholesale prices not only to reflect the reduction of risk for the investor but also the longer amortization period that goes with the assets to which access is requested.

Any failure to consider this aspect will either lead to (i) retail prices that are too high to allow for market take-up or (ii) else to wholesale prices that do not allow for the investor's cost recovery. More generally, the draft Recommendation should allow for a level-playing-field between the access provider and access seeker where the latter should not have shorter pay-back period for its product investments than the access provider. This point is of crucial importance for investment incentive: if an undertaking is better-off not investing than investing, it will certainly not invest.

3. Other specificities of the NGA context that need to be considered for margin squeeze or discrimination issues

FTOG agrees with the draft Recommendation's comments regarding the need for non discrimination, notably on price levels between the retail arm of a vertically integrated operator and the access seeker (point 4 of Annex I, page 18).

However, the conditions under which a standard margin squeeze test makes economic sense do not hold for NGAs.. This is confirmed by recent economic

[15] ERG (09) 07.

literature which reassessed the rationale behind margin squeeze tests in the NGA context .[16]

According to this assessment a standard margin squeeze test will be compatible with economic efficiency if it is compatible with a normal commercial behaviour in a competitive market, which has no anti-competitive dimension. Such compatibility between the respect of the margin squeeze conditions on the one hand and economic efficiency on the other hand depends on restrictive conditions such as: certainty of retail demand, homogeneous retail market, linear upstream costs and prices, etc. These conditions are not satisfied in the case of FTTH retail services. Therefore, in the case of FTTH retail service, rigidly imposing compliance with a classical margin squeeze test would be incompatible with a normal efficient commercial activity which does not entail anti competitive behaviour.

It has further been demonstrated that it is normal, efficient and pro-competitive for an integrated operator rolling-out a new infrastructure to use penetration pricing and market segmentation. But standard margin squeeze is unable to differentiate between such normal pricing behaviour and an anti-competitive predatory pricing behaviour.

Therefore it is absolutely vital for the take-off of FTTH retail services not to stick to a mechanic application of an irrelevant standard margin squeeze test, and to genuinely try to assess the actual effects of retail pricing behaviour on short term and long term customer benefits.

In any event, NGA networks allow for substantial product differentiation, which the access provider is likely to encourage. The effect of product differentiation by non-integrated firms is to make discrimination against them less attractive as their customers may not want to switch to the NGA provider's different services.

4. Final considerations on risk sharing and non discrimination

Some believe that risk sharing contracts may end up favouring the retail arm of an integrated company at the expense of alternative access beneficiaries. In this context, it is considered that time and volume conditions would be designed in a way that only the retail arm of the company could take the maximum commitments and benefit from the lowest wholesale prices.

However, such a risk can be avoided by an adequate supervision of the NRA, taking into account (1) time and volume discounts which should be derived from objective characteristics of the network cost structure, and not the commitment policy of the access seeker and (2) the existing market structure when defining reasonableness of time and volume discounts.

[16] In particular in "Price Squeezes and Vertical Discrimination on Next Generation Access Networks" by Henry Ergas, Emma Lanigan, and Eric Kodjo Ralph (July 2009, available at SSRN: http://ssrn.com/abstract=1433170).

C The concept of risk premium is insufficient to promote NGA investment

The draft Recommendation rightfully recognises the risk involved in certain NGA investments and the need to properly allocate such risks between access seekers and providers in order to foster investment in fibre. The deployment of FTTH networks in particular entails considerable risks given the demand uncertainty for enhanced services delivered via fibre and the need for large (irreversible) investments. It is currently uncertain whether FTTH based services could meet commercial success with an overall premium price on broadband services.[17] Only price segmentation on the retail market could make the business case possible, allowing both penetration and value. In such cases, the draft Recommendation provides that NRAs should assess whether a higher risk premium should be granted when defining the access prices.

The concept of risk premium as defined in the draft Recommendation implies that the usual access price covering the costs on a per access price basis is priced somewhat higher (due to the addition of a risk premium on top of the cost-based access price). This risk premium does not solve the problem of the investment incentive however as there is still a "last mover" (or "second mover") advantage that enables a follower to chose variable costs (investing only for costs "per access") when the first mover faces fixed costs (investing for a complete network).

Thus, the concept of risk premium addresses the question of the level of the access price but not the more critical question of access price structure nor the necessary price flexibility on the retail market.

Long term contracts can solve this problem as explained above. It avoids a situation where the first investor has a structural disadvantage compared to a later entrant. This would be the case if the latter had a choice between switching from a variable cost structure of the wholesale offer to the fixed cost of building its own infrastructure. As for the impact on retail prices, wholesale price adjustments in view of long term or volume contracts allow for a much wider flexibility of prices on the retail market.[18]

A "risk premium" per access would only increase the wholesale price, making it even more difficult to offer adequate retail prices for market take-up. Indeed, in the case of a wholesale "risk premium" price per access, the full cost of the infrastructure is contained in the variable price per access of the wholesale offer. This wholesale price per access will be included in retail prices of the access beneficiary and in the retail prices of the infrastructure owner due to the risk of the application of a margin squeeze test. This will lead to a very high variable wholesale price per access as the new infrastructure will be empty in the beginning.

The proposed project-specific risk premium on the WACC alone will therefore not solve the lack of incentives for widespread NGA roll-out in Europe. Still, it can be one element, among others, in the access price components that helps to address the risk involved in NGA investment, whether within or outside a long term contract mechanism.

[17] At this point in time, an operator is promoting its fibre offer at the same price as its broadband offer (€ 29.99 per month) – no premium is therefore applied.
[18] See Annex H in the second document.: Research paper "Rich access contracts and NGA investments", advantage of contract with commitment compared to risk premium.

VII. The concept of co-investment should be open and not mandate a predefined form

Co-investment is a business decision taken by two or more private companies in line with their overall development strategy. Co-investment should be left to market functioning and should not be influenced or governed by regulation. Similarly, co-investment cannot annul the functioning and requirement for market analyses that needs to be performed by NRAs.

The draft Recommendation considers that co-investment arrangements may be beneficial (see Recitals 30, 32, 46). For this reason co-investment can lead to de-regulation (no cost orientation or absence of SMP). De-regulation, due to absence of SMP, could notably justify an exception to the unbundling of the fibre loop which is otherwise to be imposed by NRAs on SMP operators deploying FTTH (see point 19 of the Draft).

Yet, the Draft defines co-investment narrowly:

> *"Co-investment in FTTH" means an arrangement between providers of electronic communications services with a view to deploying FTTH networks in a joint manner, in particular in less densely populated areas. Co-investment covers different legal arrangements, but typically co-investors will jointly build a common network infrastructure and share physical access to that infrastructure."*

Similarly, de-regulation as a result of co-investment is subject to the very specific conditions spelled out in Annex III. These conditions specify co-investment scenarios that could lift the obligation of NRAs to impose cost orientation on access to the unbundled fibre loop or else raise a presumption of absence of SMP.

Absence of SMP can further be presumed - in situations of co-investment - in markets where at least four competing fibre networks are deployed (including the "SMP operator") or at least three fibre networks and an alternative operator competing on the retail level on the basis of its own network (such as a cable operator). Other conditions should apply (cumulatively) such as a multi fibre line deployment for the FTTH networks, equal and cost oriented access to joint infrastructure, effective competition between co-investors on the downstream market, sufficient duct capacity to allow third party access and possibility for third parties using local loop unbundling to migrate to comparable NGA wholesale products in case of de-commissioning of points of interconnection.

Some of these conditions are of such nature that it would be very difficult to qualify for de-regulation. Furthermore, the joint reading of Annex III with the definition of co-investment in the Glossary risks making Annex III virtually inapplicable unless the specific form of cooperation and technology described therein is chosen.[19] More specifically:

[19] The Recommendation also fails to provide clarity on a possible safe harbour for undertakings entering into co-investment arrangements which could be challenged on the basis of Article 81 and 82 of the EU Treaty. This risk further increases the difficulty to use Annex III as a framework for co-investment.

Annex III of the Draft imposes a multi fibre deployment as a pre-condition for de-regulation contrary to the technological neutrality principle. This further excludes cooperative investment scenarios based on mono-fibre deployment which can be equally beneficial for competition and efficient deployment.

- In Section 2 of Annex III, reference is made to three operators in addition to the operator having been designated SMP. However, in order to presume absence of SMP, the NRA should not be obliged to first designate the SMP operator. In a situation of joint deployment as described in the Annex there is no reason to proceed with an SMP designation before triggering a presumption of absence of SMP.

- *"Joint deployment of FTTH networks"* could be read as prejudging the ownership structure of the FTTH networks. This should therefore be changed. Indeed, joint deployment could also cover parallel deployment by several operators who are cooperating together (for example, to complete each others' footprint or to share each others' terminating segments), without however sharing the ownership on the infrastructure deployed. Joint deployment should be interpreted broadly and should not be understood as meaning that it is taking place at the exact same time and in the exact same region.

- The current wording of the Annex III includes timing/sequencing problems in relation to the regulatory consequences attached to the deployment of fibre (see section IV above).

Irrespective of the "virtual" nature of Annex III in view of the strict conditions imposed, the overall presence of four operators on a mass market makes the market competitive, even when not all four operators are or will be present in each specific area of the territory. The fact that some or all such operators co-invest does not make the market more competitive, quite the contrary. Annex III fails to recognize this and the merits of single company investments in a context of infrastructure competition.

In view of the above, we would suggest not introducing any specific regulatory rules in case of co-investment, and in any event refraining from defining co-investment in the draft Recommendation. We therefore propose to delete the Annex III. Co-investment could be an interesting alternative to deploy networks in non dense areas but it requires a flexible contractual negotiation context and a standard regulatory regime that is independent from the co-investment modalities. In view of the above, we propose to delete both the definition of "Co-investment in FTTH" and Recital 28 in the draft Recommendation

VIII. Other issues:

The usage of the SMP concept in an NGA context needs further clarification:

First, the Draft uses the term "SMP operator" very loosely without specifying the relevant market on which SMP is held for the different cases or without specifying whether there could be one or more operators holding SMP. As referred to above, in a framework of asymmetric regulation of terminating access, NRAs could find that any operator owning the terminating segments of an NGA network is SMP on such segment. Similarly, an SMP position on the civil engineering infrastructure may have to be distinguished from an SMP position on the fibre network for example in view of competing fibre networks as opposed to a single civil engineering infrastructure.

Second, for some obligations, it is further questionable whether the SMP criterion – implying asymmetric remedies – is the right one. In the case of access to terminating segments (or even ducts) for example, symmetric remedies for holders may be more appropriate, irrespective of SMP on market 4 and 5. As an alternative, one could consider that any undertaking owner of a terminating segment could be deemed to hold SMP on the market for the terminating segment – this could be an option also to regulate bottlenecks in the context of asymmetric regulation. To illustrate, the table below shows that the most significant FTTH/B deployment as of December 2008 have been made by alternative operators that have not traditionally been considered to have SMP in market 4 or 5. The main actors are 6 alternatives, 4 power utility, 4 incumbents, 2 public, 1 cable operator, 1 infrastructure provider.

Countries	Players		Home/Building passed (December 2008)
Denmark	DONG Energy	Power utility	150 000
	Energie Midt	Power utility	75 000
	TRE FOR	Power utility	60 000
Finland	TeliaSonera	Incumbent	400 000
France	France Telecom	Incumbent	500 000
	Illiad/free	Alternative	300 000
	SFR	Alternative	250 000
	Numericable	Cable operator	3 400 000
Germany	Wilhelm Tel	Public	100 000
	M-Net	Public	80 000
Italy	Fastweb	Alternative	2 000 000
Netherlands	Reggefiber	Infrastructure operator	350 000
Norway	Lyse	Power utility	170 000
Slovakia	T-COM	Incumbent	200 000
	Orange Slovensko	Alternative	215 000
Slovenia	T2	Alternative	200 000
Spain	Telefonica	Incumbent	250 000
Sweden	B2	Alternative	390 000

Source: IDATE for FTTH Council Europe

Page 7, point 39, it is stated that *"NRAs should apply non-discrimination principles in order to avoid any timing advantage for the retail arm of the SMP operator. The latter should be obliged to update its wholesale offer before it launches new retail services based on fibre to allow competing operators enjoying access a reasonable period to react to the launch of such products. Six months is considered a reasonable period to make the necessary adjustments."* It is reasonable to update reference offer when relevant in order to keep the access seekers informed of the evolution of the offers sufficiently in advance fro obvious operational and business reasons. However, 6 months is an unrealistic delay in respect of the new product launch timing.

Page 12, point 14 states that *"NRAs should, in accordance with market demand, encourage, or, where legally possible under national law, oblige the SMP operator, when building civil engineering infrastructure, to install sufficient capacity for other operators to make use of these facilities."* Under Article 9 of the Access Directive, SMP operators may be mandated to give access, to publicise specified information such as network characteristics, but not to roll-out a network with certain characteristics. This point 14 is therefore not consistent with the Access Directive.

Page 12, point 15: it is specified *"NRAs should oblige the SMP operator to provide detailed information on its access network architecture and, following consultation with potential access seekers on viable access points, determine where the distribution point of the terminating segment of the access network should be for the purpose of mandating access".* The following comments should be made in this respect:

First, the in-building wiring is a new and sensitive matter. A priori, symmetric remedies seem to be the more natural approach.

Second, the relevance of the distribution point situation is linked to the potential economies of scale. Cost analyses have showed that the most efficient solution is to have the mutualisation point inside the building.

For reasons of economic, operations and maintenance, network planning and industry organisation distribution points should be situated within the building:

- In buildings, distribution points avoid numerous stand-alone concentration points in the public domain.
- There are large operations and maintenance economies of scale that come along with in-building distribution points and fibre wiring of the building, notably with respect to the roll-out of building fibre network and intervention at the customer premises.
- Distribution points outside buildings would imply the addition of a specific layer of network nodes and technical areas to be managed by several parties which could imply a conflicting and cumbersome process.
- If the extension of the building fibre network stays limited to the building, a wide range of companies can operate in this market. If building fibre networks are extended to the public domain and to the use of ducts, the market will be limited to network operators.

It should be further noted that having the distribution point in the street raises some difficulties:

- The environment of distribution point in the public domain is not adapted to optical splitters because of the pollution generated by water, dirt etc.

- Operational difficulties for intervening in the distribution point and the associated costs: prevention plans, security of the persons etc.
- When the mutualisation point is in the building, the connection of a new subscriber requires only one visit. This is not the case when the point is in the street, in which case two visits are necessary.

In sum, for both cost and operational reasons, the choice of the distribution point must remain in the hand of the operators.

Page 15, point 40 states that *"NRAs should analyse whether an obligation of cost orientation on mandated wholesale broadband access is necessary to achieve effective competition in case functional separation or other forms of separation have proved effectively to guarantee equivalence of inputs."* This statement is either inconsistent or manifestly disproportionate. If the separation has proven to be efficient, there is no reason to continue to impose a cost orientation obligation or wholesale broadband access. Relating functional separation to price regulation issue is inconsistent as functional separation is supposed to address "non-price" discrimination. In that respect, OFTG considers that functional separation has proven its inefficiency concerning quality, efficiency and investments. Moreover, the recent review of the EU Regulatory Framework has rightly defined very strict and limitative conditions before functional separation could be considered.

Page 17, Annexe I: it is specified *"The price of access to physical network infrastructure would not be a geographical average in the presence of substantial cost differences between various areas."* In this regard, the regulatory de-averaging of prices according to potentially different costs in different geographies entails significant risks that have to be considered as geographical de-averaging would not be consistent with existing unbundling policy.

While supposedly based on the same costs, the "averaged" tariffs for unbundling and the "de-averaged" tariffs of ducts would not be coherent with one another. NRAs may indeed be unable to properly implement a differentiation based on underlying cost-differences in view of the complexity of cost accounting which is already visible in current access regulation. This would create artificial discontinuities, possible digital divide and increase European disparities.

Page 22 of the draft Recommendation it is specified that *"The calculation of the service level indicators should be performed at regular, fixed intervals and submitted to third-party access seekers. The NRA should control that service levels delivered to third-party access seekers are equivalent to those delivered internally by the SMP operator. The SMP operator should commit to adequate compensation in case of failure to comply with target service levels agreed with third-party access seekers."*

In this regard, we note that the principle of compensation for non compliance to commitments is acceptable but only under certain conditions. Compensation in the case of non conformity with delay commitments must be accompanied by conditions allowing the supplier to fulfil its obligations. Typically, conformity with wholesale product delivery time is dependant on the availability of certain information: the supplier must know where to deliver, how much to produce in order to organize its production-delivery chain. In addition, it would be most efficient if the new entrants smooth out the orders; command peaks lead to production disorganisation for all the parties involved. If this information is not available or erroneous, no compensation should be due; on the contrary penalties should be imposed to the entrant.

Page 23, point 7: it is stated that *"NRAs at a minimum should ensure that those persons involved in the retail arm activities of the SMP operator may not participate in company structures of the SMP operator responsible, directly or indirectly, for managing access to civil engineering infrastructure."* What is meant with this sentence? Does it imply a form of functional separation? This recommendation is clearly going too far in the SMP operator's organisation and does not seem to be a proportionate requirement. The first paragraph is explicit enough *"the SMP operator in charge of operating the civil engineering infrastructure should not share such information with its downstream retail arm"*, and the second sentence should therefore be deleted.