Response from the Tele2 Group

to

European Regulators Group Consultation ERG (07) 16

Regulatory Principles of Next Generation Access

June 2007

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A. Introduction and comments on the ERG's general approach

Tele2 (www.tele2.com) is Europe's leading competitor to the incumbent telecommunications operators, providing consumers and professional users with a wide range of attractively priced fixed and mobile services.

Tele2 welcomes the ERG's recognition of the importance of Next Generation Access developments. We appreciate that we are given an opportunity to provide comments, and we encourage the ERG to adopt, as soon as possible, a proactive Common Position on Regulatory Principles of Next Generation Access.

We wish to emphasize immediately that we agree strongly with the ERG that the concept of 'ladder of investment' remains applicable today and in the context of Next Generation Access, but we also wish to make it immediately clear that major adjustments to the ERG's approach are needed, in order to ensure that competitors can continue to compete, using a combination of own network assets and realistic access solutions.

Tele2's development in most EU Member States is a perfect demonstration of 'climbing the ladder of investment'. We wish to be able to continue our ascension on the ladder, which requires intervention along the lines of the general approach set out by the ERG in the consultation document. However, it also requires adjustments, in particular as regards the possible closure of Main Distribution Frame locations, and corrections to ensure that it will be possible for competitors to take up the new wholesale access inputs such sub-loop unbundling in combination with street cabinet co-location and backhaul from street cabinets.

Today, Tele2's services are based upon our wholly-owned extensive fixed and mobile infrastructure (including our own FttB, our own metropolitan/business park fibre access networks, our own fibre backbone and fibre backhaul infrastructure, as well as wholly-owned mobile networks). This infrastructure is complemented where necessary with wholesale inputs purchased from other operators, including local loop unbundling, bitstream access, leased lines, wholesale line rental, mobile access, interconnection, etc. and various associated facilities.

Tele2's reliance on these wholesale inputs (which are not exclusively purchased from incumbent operators that result from regulatory obligations – we also purchase from alternative operators) varies in function of geographic and temporal characteristics, driven by Tele2's time of market entry, customer density, feasibility of own network roll-out, and – very importantly – the market dynamics and regulatory framework. Indeed, Tele2 has, in the past few years, strengthened its position in the countries where we have confidence in the market and regulatory environment, by making major investments and by acquiring alternative operators with extensive own infrastructure and unbundling footprints. By contrast, Tele2 has disengaged itself from countries where the prospects for competitors rendered it unlikely that the company would be able to remain an effective competitor on a stand-alone basis with an outlook on a reasonable return on investment. This depends on several criteria in which the regulatory environment plays an important role. We hope and trust that the ERG Common Position, and NRA action, will create the conditions enabling competitors such as Tele2 to expand their geographic coverage.

Tele2's key messages to the ERG in the context of this consultation are as follows:

- Vigorous promotion of competition is more essential than ever. A proactive stance on the part of regulatory authorities, applying the existing legal and regulatory framework to the full extent, and adjusted where necessary, must ensure realistic incentives for efficient investment and realistic prospects for return on investment for incumbent operators and for competitors alike.

  The general approach put forward by the ERG, which amounts to an extension of wholesale-level remedies in the context of Next Generation Access, is undoubtedly necessary, and has Tele2's full support, but, by itself, risks being insufficient to preserve and promote competition.

- Incumbent operators' structural advantages over competitors are again increasing. This manifests itself in many forms, including incumbents' control over bottleneck facilities (many of which were built in the monopoly period), reinforcement of national economies of scale and scope, whereas it becomes increasingly difficult to valorise economies of scale and scope internationally due to divergence in technologies and regulations, differences in objective costs (incumbents can save costs, competitors' costs are likely to increase), differences in sources of financing, etc. Structural advantages enjoyed by dominant operators need to be corrected in order to preserve and promote competition.

  Such a correction should address existing/envisaged charges for wholesale inputs, introduced in a coherent ladder of investment, taking into account the objective differences in costs for incumbent operators and alternative operators in VDSL and FttB/H scenarios. We note in this context that, on the one hand, incumbent operators have announced to their financial investors that their VDSL2 roll-outs would reduce costs or be cost-neutral, whilst on the other hand, OPTA's proposals (fees for sub-loop unbundling and street cabinet access) amount to radical cost increases for competitors. Tele2 wishes to emphasize that, under the OPTA proposals, which will now presumably become fact, competitors' costs to utilize sub-loop unbundling would be of such magnitude that there exists a severe risk that the intensity of competition in The Netherlands will diminish.

- Transparency on dominant operators' Next Generation Access plans is quasi non-existent. Only in a few countries has there been any visibility on roll-out plans and the possible phasing out of Main Distribution Frame locations. This causes uncertainty on the continued availability of regulated bottleneck facilities, and hence deters investment by competitors (Tele2 has halted the geographic extension of local loop unbundling in The Netherlands, nota bene the only country where a certain degree of transparency exists). This state of affairs also prevents regulatory authorities from carrying out the duties given to them by the legal and regulatory framework. In this context, we wish to express our serious concern that NRAs may be unprepared to deal with impending undermining of the local loop unbundling mandate (EU Regulation 2887/2000 and subsequent NRA market analysis decisions). We welcome the ERG's attention to the risks involved with NGA deployment by dominant operators, but action is needed now. The ERG and individual NRAs should make a firm statement today that they will not allow the unbundling mandate to be breached and that NRAs will exercise their information gathering powers now to create total transparency on dominant operators' plans (covering the entirety of network architecture transformation, as well as every case-by-case planned change).

- As visible now in the Netherlands and Germany, it turns out that transparency comes in different forms. The incumbent's plans may undergo various changes (strategic or not) which potentially have a huge impact on competitors' business plans and future outlook. NRAs must put measures in place in order to balance the interests of incumbents and the interests of the competitors. This can be done by setting clear guidelines on required lead-times on changes in dominant operators' wholesale access portfolio.

B. The ERG's scenarios (NGA roll-out alternatives)

Tele2 wishes to congratulate the ERG's project team for having prepared a comprehensive and technically apt analysis of the most relevant roll-out scenarios, i.e. VDSL2 deployed from street cabinets or deployed from equivalent locations (underground, in buildings/cellars, etc.), Fibre-to-the-Building (which may involve VDSL/VDSL2 indoor, or other indoor technologies such as Ethernet over CAT5/6 cabling) and Fibre-to-the-Home/Apartment.

We fully support the ERG's focus on the models adopted by telecommunications operators that are in a position to leverage an existing dominant position and/or assets acquired under monopoly conditions, and bottleneck facilities in general.

It would, however, be useful to also consider the impact of FttX networks built/being built/planned by publicly funded entities, such as municipal and regional authorities, and utilities and housing corporations which are often controlled by or affiliated with public authorities. Entities, which are most often at least partially publicly funded, that are happy to adopt a 20+ years return on investment and rates of return below 5% are active in the deployment of Next Generation Access networks. They have/will have an effect on the viability of the plans of companies that have to rely on capital markets for their development, and hence on competition. In this context, we refer to the European Commission's State Aid prohibition decision in the Appingedam case, and the European Commission's State Aid consultation in the Amsterdam Citynet case. We invite the ERG to take due account of all Next Generation Access projects that could be detrimental to competition.

With regard to our use of terminology, it will be seen from our introductory comment above that we do not use the 'FttCab' terminology, and that we split the FttB and FttH scenarios. In Tele2's opinion, the key characteristic of Scenario I, is not the fact that fibre is brought lower in the network hierarchy. Instead, the key characteristics are that there are new risks of spectral interference with ADSL2+ deployed higher in the network architecture, and that there is the risk that dominant operators could undermine or breach the unbundling mandate, which is a basic tenet of the EU regulatory framework and the European regulatory model. We urge the ERG to make clearer in its final Common Position that VDSL2 deployed from street cabinets or equivalent locations puts the European regulatory model at risk, and that corrective action is necessary to preserve and enhance the success of the European regulatory model.

We would also like to point out that the ERG seems quite optimistic in describing the capabilities of VDSL2 in the text, although Figure 3 provides the necessary nuance.

As regards Scenario II, we broadly agree with the presentation, but we invite the ERG to contact operators (and their equipment vendors) that adopt architectures other than GPON in order to discuss comparative advantages and cost profiles. Indeed, the current situation is such that there is probably more point-to-point Ethernet being rolled-out than GPON, even though this is attributable to the fact that incumbent operators are lagging behind competitors and behind the publicly funded and utility fibre networks. Footnote 39 in particular seems to overstate the importance of GPON. We also invite the ERG to further investigate the technical and economic aspects of optical wavelength access (wavelength access has been achieved in trial set-ups), in particular the question as to whether splitters could be utilized, enabling 'wavelength unbundling' at higher levels in the network hierarchy, for example the current Main Distribution Frame locations.

C. The ERG's conclusions on economics and business case studies

Tele2 provided input to the Analysys study conducted for OPTA, and our own calculations yield results that are broadly similar to those of the studies cited and summarized by the ERG.

These studies, and especially the elements that were summarized by the ERG, focus mainly on the costs of VDSL2 roll-out (street cabinets or equivalent equipped with xDSL and optical transmission equipment, backhaul from street cabinets, etc.) and FttH roll-out, but only a little on the 'translation' of those costs into fees for wholesale access products (sub-loop unbundling, street cabinet co-location/tie-cabling, backhaul duct and fibre access, etc.). The studies, and especially the ERG, say relatively little on the cost savings that can be achieved by incumbent operators (especially opex/staff reductions, which are a primary motivator for incumbents). The studies also touch upon an expected/required increase of ARPU.

Tele2 is particularly disturbed by three aspects in this context:

- Costs and cost-savings are treated in isolation, whereas they should be examined in conjunction.

- Costs and benefits for incumbent operators and for competitors are completely different, which is insufficiently recognized and requires correction.

- Assumptions on necessity/achievement of increased retail ARPU are apparently taken over by the ERG, which ignores the fact that competitors must price below incumbents in order to attract and retain customers.

We elaborate on these points below.

The approach taken in the studies to perform cost assessment and wholesale charge definition is a traditional cost-calculation/allocation exercise. It essentially examines the costs of fibre access and fibre backhaul, costs of migrating from full loops to sub-loops, costs of installation/power/cooling of street cabinets or equivalent, etc. From these costs, presumed wholesale charges will be derived for sub-loop/fibre activation/migration, sub-loop/fibre rental, street cabinet co-location or tie-cabling, wholesale charges for various backhaul options, etc. This is the approach taken by the Dutch OPTA (on which the European Commission had no comments). The sub-loop rental charges determined by OPTA are higher than the figures used by Analysys in its cost-calculation methodology and they are substantially higher than what was put forward in the corrected Analysys model.

The studies note and recognize that incumbent operators will have to engage in NGA-related capex (moderate in comparison with their existing capex/opex/cash-flows) and that incumbent operators will be able to achieve substantial opex reductions. In fact, KPN expects to nearly halve its staff as a result of its 'All-IP' transformation (core and access network), and Telecom Italia has stated that its NGA plans would not change capex materially.

The aspect that worries Tele2 most is that neither the studies, nor the ERG, make a connection between the costs for incumbent operators (which could directly translate into wholesale access charges to be paid by competitors) and the cost-reductions available to incumbent operators (which are not proposed to be taken into account in defining wholesale access charges to be paid by competitors), not to mention the potential and very significant windfall constituted by the possibility for many incumbent operators to sell prime real-estate.

Please allow us therefore to state very clearly that, in Tele2's view, it is necessary to consider the overall economics for incumbents and the overall economics for competitors, and, in the context of definition of wholesale access charges, to take into account these overall economics.

In contrast to incumbents, Tele2 has no opportunity to sell buildings (note also that Tele2 has had to make up-front payments to transform incumbent buildings in the context of co-location for local loop unbundling), Tele2 has no opportunity to reduce opex because we do not have legacy inefficiencies. Tele 2 is at risk of being faced with the stranding of not-yet-amortised assets (capex for transforming incumbent buildings, capex for electronics, capex for own network backhaul, etc.). Regulatory intervention is necessary to prevent the stranding of these considerable investments or, alternatively, a form of 'compensation' must be defined which will enable Tele2 to continue to compete (i.e. define and provide its own services, whilst achieving a sustainable return on investment).

Costs for incumbents will go down, whilst all indications of NRA positions available at present suggest that these same incumbents will be allowed to charge more to the competitors than they charged before, which would result in perverse effects on the market.

Tele2 recommends the ERG to consider costs and cost-savings, for incumbents and for competitors alike, in an integrated manner, and we recommend that the ERG Common Position should strongly encourage NRAs NOT to follow the model adopted by OPTA which uses costs in isolation to determine sub-loop unbundling and street cabinet co-location charges. Instead, NRAs, when determining wholesale access charges for sub-loop unbundling, fibre access, street cabinet co-location, street cabinet tie-cabling, backhaul duct access, dark fibre/wavelength access, etc., should apply a correction, which takes into account incumbents' cost-savings and any windfalls (especially where it concerns the selling off of assets acquired while still holding a monopoly position), so as to preserve the possibility for competitors to compete on a level playing field, and to invest realistically in order to take up the new access options.

We also note that the studies suggest that an increase in ARPU is likely to be necessary to justify operators' investments in NGA, and that the ERG refers (in section 3.2.2.3) to *'ARPU that can be realized by offering customers innovative services'*. The ERG appears to integrate assumptions on increased ARPU generated by unidentified *'innovative services'* in its reasoning, or at least does not challenge these assumptions.

Tele2 wishes to ask the ERG to refrain from integrating any hypotheses on increased retail-level ARPU in its reasoning, be it explicitly or implicitly. We consider assumptions on increased ARPU extremely risky, especially if they would be made on a prospective basis in the context of the definition of access charges for wholesale NGA inputs. In addition, the ERG should bear in mind that the situation of the incumbents and an operator such as Tele2 is not the same. In order to attract and retain customers, companies such as Tele2 are compelled to offer retail prices that are substantially lower than those of incumbent operators. Indeed, this stands at the core of Tele2's strategy and customer proposition. Therefore, any hypothetical increase in ARPU for incumbents may not translate to a corresponding increase in ARPU for Tele2 or for other competitors.

In this context, please allow us also to emphasize that Tele2 and other competitors have, in nearly all cases, been the product innovators at the retail level, and that Tele2 and other competitors have borne, and will continue to bear, the costs of being product leaders, which represents a cost going beyond that of paying last-mile access fees to dominant operators.

The points listed above bring us to Tele2's assessment of the ERG's proposed conclusions on the business case studies.

We agree with the ERG that NGA developments reinforce the importance of economies of scale and scope at national level, and that there is clearly a severe risk of being confronted with enduring economic bottlenecks in the access and backhaul networks. This is valid in all NGA scenarios discussed in the ERG consultation document.

The key concerns for Tele2 are that dominant operators are, more than ever, able to leverage their control over bottleneck facilities (many of which, including ducts in the backhaul segment, were built in the monopoly period), and that regulators may look at only part of the economic equation, i.e. the cost side for incumbents, translating to

charges for (new) wholesale NGA inputs, whilst not incorporating cost-savings for incumbents, and objective economics for competitors.
The risk is that NRAs will define new remedies such as street cabinet co-location/tie-cabling and new backhaul solutions (which is necessary and is fully supported by Tele2), along the lines of what the ERG is proposing, but that competitors will not be able to take up these access options on a significant scale, because the wholesale charges may be defined in a way which fails to encompass the overall economics, fails to restore a level playing field, and hence precludes the development of competition at the upper rungs of the revised ladder of investment.

All in all, Tele2 could agree with the ERG conclusion that *'NGA may face the same competition challenges to regulators as current generation wireline access networks'*, insofar as this would be a purely analytical/theoretical assessment. If this means that regulators would also apply the same approach as is used today, without taking resolute corrective action to ensure that costs and cost-savings are properly addressed to ensure a level playing field, then Tele2 could not agree with the ERG conclusion.

D. Regulatory implications and evolution of the ladder of investment

Tele2 very much welcomes the ERG's analysis of regulatory implications. The consultation document provides an essential first step in recognising that regulatory intervention is acutely needed, and we appreciate the additional remedies/wholesale access products being put forward by the ERG. As discussed above, Tele2 also agrees strongly with the ERG that the concept of 'ladder of investment' remains applicable today and in the context of Next Generation Access.

However, we also believe that additional regulatory intervention is needed, in order to ensure the removal of severe distortions arising from the fact that dominant operators will be able to reduce costs, whilst competitors may face increasing costs. In summary, action going beyond the ERG's proposals is necessary in order to ensure that competitors can deliver effective competition (on products and on retail prices) going forward.

Please allow us to put forward Tele2's reasoning on the regulatory implications of Next Generation Access, the evolution of the ladder of investment, and the NRA actions that are necessary from our perspective as a major competitor in many EU Member States.

D.1 Transparency is needed now; NRAs have powers, or should have powers

The ERG consultation document reveals that most NRAs are not (at all or not fully) informed on incumbents' NGA plans, and – as is the case for competitors – have to rely on information that is in the public domain (e.g. incumbent operators' communications to investors and press releases). This is totally inadequate, and it entails risks that dominant operators may be able to take decisions that are impossible to reverse, even if such decisions are in breach of existing regulatory obligations such as the unbundling mandate.

We urge the ERG to recognize, in its opinion to be sent to the European Commission in September 2007, and in its final Common Position, that ALL operators need essential information in order to make investment decisions NOW, and that NRAs need essential information in order to ensure that existing regulations are not breached (e.g. the unbundling mandate, the principle of non-discrimination) and to correctly carry out their duties to promote competition. Uncertainty (on the availability of existing and future wholesale access inputs) inevitably benefits the operators with the largest market share (historically inherited), and deters investment by competitors.

The ERG and individual NRAs should make a firm statement today that they will not allow the unbundling mandate to be breached, and that NRAs will exercise their information gathering powers now to create total transparency on SMP operators' plans (covering the entirety of network architecture transformation, as well as every case-by-case planned change).

The information to be gathered from SMP operators and to be made available to the industry should include, as a minimum:

- Any planned change to existing wholesale access inputs (LLU, WBA, WLR, leased lines, interconnection, etc.); any planned change to retail products that would be based on modified or new self-provided wholesale inputs.

- Any planned removal of points at which wholesale access inputs are delivered.

- The timeline of any expected/planned network transformation (global plan and individual cases), change of wholesale access inputs, change of retail products based on new self-provided wholesale inputs.

If such plans are not properly communicated, NRAs should make clear that they will not allow plans to be executed.

If NRAs consider that they do not have information gathering or intervention powers to put in practice the elements outlined above, this should be flagged to the ERG, and NRAs should amend their market analysis decisions and/or regulations as a matter of utmost priority to institute such powers (e.g. power of approval/modification of reference offers), or seek changes to legislation/regulations so as to be fully empowered to obtain the necessary information and to prohibit breaches of regulation/decisions.

If plans of dominant operators affect competition, they should be subject to NRA scrutiny, and a possibility for NRAs to order cessation or modification of such plans. A precedent for this exists, constituted by article 4.3 of EC Regulation 2887/2000: *"The national regulatory authority may, where justified, intervene on its own initiative in order to ensure non-discrimination, fair competition, economic efficiency and maximum benefit for users".* The Belgian regulatory authority BIPT exercised this power in the context of VDSL roll-out on 28 October 2004.

D.2 NRA action is necessary to preserve and promote competition

Remonopolisation (deliberate or by default) is not a credible policy option. We urge the ERG to recognize, in its opinion to be sent to the European Commission in September 2007, and in its final Common Position, that competing operators (cable operators, FttB operators, unbundling operators) have created the broadband market in Europe, and have been the essential driver in the delivery of innovative and cost-efficient broadband services in Europe. For example, Tele2 launched high bandwidth Internet access based on FttB and ADSL2+ and triple-play in several countries. The incumbents responded with similar products subsequently.

We strongly agree with the ERG that bottlenecks and economies of scale and scope are reinforced at national level by NGA developments. These bottlenecks must be clearly identified (we congratulate the ERG for taking first steps in this respect) and must be vigorously addressed in order to preserve competition that exists today, and continue to promote competition going forward. In particular, the ERG and NRAs need to make a clear statement that wholesale access products to counteract bottlenecks will have to be provided by SMP operators for as long as SMP exists (and not merely restricted to the horizon of the next market analysis).

Essential wholesale access inputs

From Tele2's perspective, it is clear that at least the following wholesale access products will be required in many geographic areas in Europe:

- Access line into customer premises (metallic sub-loop or loop (twisted-pair, coax, Cat5/6), terminal segment of fibre, etc.).

- Cable distributor (underground box, cellar, street cabinet, etc.) co-location/access as an associated facility to the access to the access line.

- Backhaul duct / dark fibre / wavelengths from the last concentration point to a location that is technically reachable by a reasonably efficient competitor's network on an economically viable basis, as an associated facility to the access to the access line.

- Line-card access in the SMP operator's last active equipment (e.g. DSLAM/MSAN in a street cabinet, or optical transmission equipment equivalent).

- Wholesale broadband access, delivered at locations that are technically reachable by a reasonably efficient competitor's network on an economically viable basis, with QoS options under the control of the bitstream taker, so as to enable fully independent product definition by the bitstream taker, and suitability to provide a full portfolio of services to consumers and businesses. In practice, this means the ability to provision multiple Ethernet VLANs per individual customer, and delivery of wholesale broadband access at the Main Distribution Frame locations and alternative locations that are compatible with the geographic reach of the network of reasonably efficient competitors.

Fee structure for wholesale access inputs

One of the key success factors of local loop unbundling over the past few years (in the EU Member States where unbundling has been effective) is that it enabled the competitor to have a wholesale input cost structure (self-provided elements and co-location+loops obtained from the SMP operator) that is quasi-independent of the services/bandwidth that the competitor delivers to its retail customers. This cost structure enabled Tele2 to select the best technology, and define and launch high bandwidth and innovative products, without altering the payments Tele2 makes to the SMP operator for co-location, loop activation and loop rental. As a consequence, Tele2 and other competing operators were able to make attractive propositions towards consumers, without being forced to compete on price alone (this comment is made irrespective of the fact that price competition stands at the core of Tele2's values and strategy as well, as is evidenced by Tele2's very competitive retail pricing). By contrast, Tele2's usage of bitstream access until now has been severely unsatisfactory, because Tele2 is either faced with inadequate product differentiation possibilities and inadequate QoS, and/or a wholesale fee structure for bitstream access which is volume-based, and makes it difficult and often impossible to control wholesale costs when launching bandwidth-hungry products. Indeed, delivering IPTV over bitstream remains essentially impossible throughout the EU today.

Tele2 strongly believes that, in order to preserve and promote competition going forward, NRAs should ensure that the 'LLU-type' cost structure will also apply to modified or new wholesale access inputs defined in the context of Next Generation Access, framed in a coherent ladder of investment. This could be implemented by defining wholesale access fees for line-card access and wholesale broadband access on a 'per port' basis rather than on a 'per volume' basis. Similarly, backhaul should be subject to fees based on available capacity, not on consumption volume.

Ladder of investment

With reference to the ladder of investment, Tele2's position is very clear: what is needed to continue to promote competition is a coherent ladder, composed of wholesale access inputs (our suggested list is provided above) that must each be technically and economically viable (see above, 'LLU-type' cost structure), in relation to one-another, and avoiding wholesale-wholesale and wholesale-retail margin squeezes.

Tele2 therefore advocates that all rungs of the ladder (and corresponding wholesale access products) must exist simultaneously, thereby enabling companies such as Tele2 to select the most suitable access input on the most granular case-by-case basis (geographically down to the customer location and last cable distributor depending on efficient competitors' existing own network deployment reach). Only if this approach is followed, can regulators expect competitors to expand competition and climb the new ladder of investment. Tele2 has already built FttB, and is prepared to use sub-loop unbundling etc. but this is totally conditional upon realistic economics being guaranteed by regulation that takes into account the objective needs of reasonably efficient competitors.

Adjustment of NGA costing principles

Below, we put forward a number of deliberately radical suggestions, intended to make it absolutely clear that OPTA and BNetzA's current proposals will NOT suffice to ensure that competitors can continue to compete. We wish to provide 'food for thought' to the ERG and its members in terms of the adjustments to the economics that are needed to continue to promote competition going forward, and to create conditions under which the new access solutions could effectively be taken up by competitors.

As discussed in the introduction, Tele2 strongly believes that a correction of existing/envisaged charges for wholesale inputs is necessary, to avoid that differences in costs for incumbent operators and alternative operators in VDSL and FttB/H scenarios (cost reduction for incumbents, cost increases for competitors) amount to infeasibility for competitors and consequently their eviction from the market.

Therefore, costs and benefits for incumbents and competitors must be closely examined, and cost principles applied to the definition of fees for wholesale access inputs must be re-evaluated, as follows:

- All bottleneck facilities must be identified and addressed, taking into account costs and cost savings on a global project basis.

- Costs associated with VDSL2 roll-out (e.g. of cable distributors, migration from LLU to SLU, backhaul, etc.) should be divided equally over all access lines. Only on this basis will competitors be able to participate in sub-loop unbundling in locations where they have only a few customers. This approach will contribute to 'smoothing-out' differences in the size of the customer base between incumbents and competitors.

- Since VDSL2 (FttCab) is clearly only an intermediate step to FttB/H, the duration of depreciation of any duct/fibre investment by incumbent operators in the backhaul segment must take into account a long lifespan.

- As and when the metallic network linking the cable distributors to the Main Distribution Frames is abandoned by the incumbent operator, it must remain possible for competitors to still use this infrastructure, and any fees for this must reflect the value of an abandoned asset.

- As and when the metallic network constituting the access line into customer premises is abandoned by the incumbent operator, it must remain possible for competitors to still use this infrastructure, and any fees for this must reflect the value of an abandoned asset. Note: We understand that some incumbents are considering using the metallic access network to provide power and remote monitoring to optical terminal equipment. Any such use must be subject to regulatory supervision in order to address interference issues and must contribute correctly to the cost distribution.

- Competitors have contributed capex to transform incumbents' buildings, on the reasonable assumption that this capex could be amortised over many years. If these buildings are to be closed/sold off, competitors should be entitled to remain in these locations for a duration that is long enough to amortise the capex (of building transformation, electronics, and own network to reach that location) and make economically viable alternative arrangements, and/or lead to a compensation / receipt of part of sales proceeds.

- Fees for full sub-loop unbundling (activation, migration, recurring) put forward by OPTA are quasi identical to existing full unbundling fees. In the case of shared access, the recurring sub-loop unbundling fee put forward by OPTA is far higher than the existing shared access fee. This needs to be corrected. The fees should reflect the value of an asset that is nearing the end of its lifespan, and be further adjusted to reflect cost savings achieved by incumbent operators elsewhere as part of the NGA roll-out.

Processes to achieve a 'real world perspective'

Tele2 also believes that NRAs must set up processes at national level to identify the issues, the economics and the solutions from a 'real world perspective', specifically in order to:

- Achieve a proper identification of bottlenecks (the devil is in the detail).
- Achieve a proper definition of each of the wholesale access inputs.
- Set the wholesale access fees correctly in a coherently shaped ladder of investment.
- Avoid 'ivory tower solutions' that will simply not be taken up because of lack of viability even for reasonably efficient competitors.

We recommend that the NRA should – as a minimum – take the initiative to set up industry groups, preferably chaired by the NRA, to debate the issues within a clearly defined framework, with clear targets and clear deliverables. If SMP operators would refuse to participate or refuse to disclose certain information, the NRA should have the power to enforce disclosure of information (see also our comments above on transparency).

Tele2 also recommends that all NRAs could use the market analysis process (e.g. renewed analysis of Markets 11 & 12 – conducted in parallel + Markets 13 & 14, if appropriate) as a means to gather information, and put pressure on SMP operators to disclose information in the multilateral process described above. A combination of these two initiatives could also shed light on geographic differences and the possibility of adopting differentiated remedies depending on the intensity of competition in different areas, taking into account the plans of the incumbent and of competitors.

D.3 xDSL interference

The ERG consultation document only briefly mentions spectral interference on metallic loops and sub-loops, whereas this is objectively a serious issue, which requires attention by all NRAs, even going beyond the specific context of Next Generation Access.

VDSL (1 and 2) deployed from street cabinets clearly affects ADSL2+ deployed by competitors such as Tele2 from the Main Distribution Frame locations, principally by degrading the bandwidth that can be delivered using ADSL2+. After intervention by the regulatory authority in Belgium, Belgacom was required to reduce the power output of VDSL(1) and Belgacom's reference unbundling offer (Annex C) now contains a commitment to apply PSD shaping for future VDSL2 roll-out. The VDSL2 roll-out schedule announced by KPN in The Netherlands also confirms that measures need to be taken to avoid serious interference (geographic selection), and KPN has committed to mitigate interference as much as possible, notably by shaping the power output on a street cabinet-by-street cabinet basis.

Tele2 notes that, until now, only a few NRAs appear to have seriously developed a strategy to ensure that metallic loop interference is addressed in a pro-competitive manner.

The ERG should ensure that all NRAs have a process in place to take decisions on interference issues (which may involve prohibiting or conditionally authorising xDSL technologies for example through the approval process of the reference unbundling offer (including the incumbents' own use), metallic spectrum utilisation, mitigating measures on roll-out schedules/geography, mandated power output restrictions, mandated PSD shaping, etc.).

Tele2 supports ECTA's invitation to the ERG to include a chapter on spectral interference in the final ERG Common Position on Regulatory Principles for NGA.

D.4 Closure of Main Distribution Frame locations

Tele2 has invested heavily (directly or through acquisition of other alternative operators depending on the countries) in its own duct and fibre network to reach Main Distribution Frame locations, where we have co-located ADSL, ADSL2+ and ShDSL equipment which activates unbundled local loops. Additionally, we incurred one-off building transformation fees and paid one-off co-location fees, incurred capex for network and equipment, etc.

Whilst we have halted further roll-out of local loop unbundling in The Netherlands due to the intolerable uncertainty on future availability of local loop unbundling at the Main Distribution Frames, we continue to invest in local loop unbundling in several EU Member States, with major current development ongoing in Italy and Germany (JV with QSC) especially.

Please allow us to be very clear: closure or phasing out of Main Distribution Frames is not a matter that can be taken lightly or can be taken for granted by the ERG or by any NRA. Any such development would damage the ability of Tele2 to continue to provide aggressive product and price competition, and will affect Tele2's geographic footprint, across the EU, and at national level within individual EU Member States.

Given what is stated above, Tele2 strongly advocates that closure of Main Distribution Frames should be prohibited by NRAs, unless and until proper justification has been provided by incumbent operators, and subjected to a test equivalent to article 4.3 of EC Regulation 2887/2000: *"The national regulatory authority may, where justified, intervene on its own initiative in order to ensure non-discrimination, fair competition, economic efficiency and maximum benefit for users".*
If closure of Main Distribution Frames is deemed justified after this test is conducted, then it is absolutely essential for the NRA to establish a firm set of rules for eventual closure, encompassing at least the following elements:

- The incumbent operator must present a tangible plan for phasing out Main Distribution Frame locations, include a global timeframe and a timeframe for each location. This plan, including each individual element, must be subject to public consultation and subject to explicit NRA approval, with powers for the NRA to modify the plan where appropriate.

- If the incumbent operator is not fully vacating the building itself (e.g. because some services would continue to be provided from this location, the metallic network would continue to be used selectively or to provide power/monitoring, use of office space, etc.), phasing out of Main Distribution Frame access must be prohibited.

- If a building is to be fully vacated, agreement must be sought with the competitors that have co-located, including on a timetable between the announcement of closure, and effective closure. The NRA dispute resolution powers should apply to negotiations of the termination of Main Distribution Frame access and related co-location, including the timeframe.

- The timeframe, for each location, must enable competitors to amortise their investment (fees paid for building transformation, fees paid for co-location, capex for operator transmission equipment, capex to build competitor's network to the location, etc.).

- A financial compensation, covering the stranded investments, as well as any additional investments needed by the competitor (which enables the competitor to continue to offer its own products, own QoS, on economic terms that are equivalent or superior).

- If migration to a different location (lower or higher in the network hierarchy) is required, the incumbent which triggers a migration that is not requested by the competitor must offer this migration free of charge.

- Fully-fledged alternatives to local loop unbundling from the Main Distribution Frame (lower or higher in the network hierarchy), encompassing the wholesale access inputs listed in section D.2 above, which enables the competitor to continue to offer its own products, own QoS, on economic terms that are equivalent or superior (economic terms listed in section D.2 above).

- Prevention of interference, as indicated in section D.3 above.

E. ERG and Tele2 conclusions

As has been stated repeatedly in this document, Tele2 welcomes the ERG's high quality consultation document, and Tele2 wishes to explicitly support the proposals made by the ERG.

We endorse the definition of a revised ladder of investment to deal with Next Generation Access developments, which should be coherent in that it should promote investment in own infrastructure where possible, and provide for additional wholesale access inputs where appropriate, such as economically viable sub-loop unbundling, fibre access unbundling, cable distributor co-location/access, various backhaul options (not mutually exclusive) and wholesale broadband access delivered at the Main Distribution Frame and other locations corresponding to the network reach of reasonably efficient competitors.

Tele2 agrees with the ERG that the Recommendation on Relevant Markets Susceptible to Ex-Ante Regulation must be adjusted, in particular to ensure that Market 11 becomes truly technology-neutral (removal of any references to 'metallic loops'). Tele2 also wishes to emphasize that, although Market 12 is correctly defined in the list of markets in the Recommendation, the objective reality today is that bitstream access provided by SMP operators is not suitable to enable Tele2 to define its own products, its own QoS, etc. and, coupled with these technical deficiencies, that the volume-based wholesale fee structure for bitstream access inhibits competition, notably as regards the provision of IPTV. It is clear that wholesale broadband access will remain important going forward, and that its importance may increase. Therefore we invite the ERG to confirm that wholesale broadband access must become technically and economically suitable to enable reasonably efficient competitors to compete effectively where it is not viable build their own access network and/or to take up other wholesale access inputs, including the new wholesale access inputs that are envisaged in the consultation document. This means that technical parameters as well as economic parameters need to be adjusted, as outlined in this Tele2 response.

Please allow us also to reiterate that we strongly believe that intervention going beyond the ERG's proposals is needed. Indeed, we consider the OPTA and BNetzA proposals as extremely worrying, because, whilst they (fully justifiably) lead to the definition of additional access solutions, they singularly fail to introduce corrections at the level of the wholesale access fees, which are objectively necessary to enable competitors such as Tele2 to continue to compete. Most notably, we consider it an absolute necessity to examine the costs and benefits (including cost savings) for incumbent operators and for competitors, and to avoid that costs for incumbents would be reduced, whilst these same incumbents would be able to charge more to competitors for essential wholesale access inputs. This Tele2 response contains a set of tangible proposals to correct economic distortions.

We have also made clear that transparency on dominant operators' plans (globally and in minute detail) is totally insufficient at this point in time, and is causing uncertainty and consequently is deterring investment. Again, this Tele2 response contains a set of proposals for the ERG and NRAs to create transparency, using powers that are available to NRAs today, or should be available today.

In summary, we encourage the ERG to confirm, as soon as possible, its proposals in a solid Common Position, and to add to it the elements suggested by Tele2, in particular a correction of the approach to costing of wholesale access inputs, so as to ensure that competitors such as Tele2 will have a realistic chance of continuing to combine own infrastructure roll-out, whilst taking up the new wholesale inputs where needed, and continue to compete on product characteristics and on price.

Should you require clarification or further information, please contact:

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