[redacted]

RESPONSE TO BIPT CONSULTATION CONCERNING TARIFFS FOR WHOLESALE ACCESS TO NETWORKS OF CABLE OPERATORS

1. Telenet thanks the Belgian regulators ("**BIPT/VRM/CSA**"; together the **"Belgian NRA**") for organizing a public consultation on its draft decision concerning monthly tariffs for wholesale access to the networks of cable operators[1] (the "**Draft Decision**") and has set out its initial contribution below. This contribution is made without prejudice as Telenet is still in the process of requesting a complete and adequate access to the administrative file and the draft cost model in order to allow it to fully exercise its procedural rights. Telenet is also still in the process of verifying the costs associated to digital TV and interconnection ports which require a more in-depth factual analysis which it was not able to conduct. The values seem wrong but Telenet will need more time to understand if and how they should be corrected.

2. The contribution is structured as follows: (i) Section 1 examines the general principles an NRA must observe when adopting a price regulation; Section 2 examines the negative impact of the proposed regulation, the general industrial context and the economic criticisms on the proposed regulation, and (ii) Section 3 shows where the Draft Decision violates the general principles and legal requirements which the Belgian NRA has to observe.[2]

3. Telenet has also requested e-Conomics to conduct an independent critical analysis of the draft cost model which complements the response and is attached as **Annex 1**. This analysis supports the criticisms contained in this submission identifying a number of fundamental flaws in the model. It also confirms the deficient access that has been granted to the cost model in terms of administrative transparency.

EXECUTIVE SUMMARY

4. The Draft Decision shows the fundamental inconsistencies of the regulatory architecture set-up in the Framework Decision[3] and exacerbates the disproportionate

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1 Ontwerpbesluit van de Raad van het BIPT Betreffende de maandelijkse tarieven voor wholesaletoegang tot de netwerken van de kabeloperatoren, available at: https://www.bipt.be/public/files/nl/22840/2019-07-05_NL.pdf

2 At this stage, we do not examine potential procedural issues associated to the adoption process. Access to the file has been requested and the BIPT is, to Telenet's understanding, planning to conduct the mandatory consultations at national and European level. General administrative law principles also require the BIPT to observe the principle of due process ("*audi et alteram partem"* and *zorgvuldigheidsbeginsel*) when adopting the proposed price regulation.

3 The Framework Decision refers to the four decisions adopted by the CRC on 29 June 2018 regarding the market analysis for broadband and broadcasting services in the Brussels Region, the Dutch-speaking

and discriminatory effects of the regulation imposed on cable networks, particularly for Telenet.

5. The access conditions imposed on cable networks are offering subsidized conditions for broadband and digital TV services. This regulation distorts competition as it offers certain operators a free ride on investments made by cable operators. Access beneficiaries will logically concentrate their commercial efforts on cable access, as the regulated conditions allow these operators to offer the full set of services at subsidized terms without having any incentive to roll out their own network and thus avoiding any investment risk. It also undermines further roll-out of fibre by Proximus which is currently largely shielded from the direct regulatory hit foreseen in the Draft Decision but will indirectly be affected by the distorted regulatory intervention.

6. The 2018 Framework Decision sets the boundaries for the Draft Decision – the Draft Decision cannot deviate nor impose stricter regulation than is foreseen in the 2018 Framework Decision. This Draft Decision is inconsistent with the alleged symmetrical regulatory architecture and softer "fair pricing" remedy (potentially also applicable in a joint dominance scenario on a converged market 3b) conceived in the 2018 Framework Decision and presented as such to the European Commission in the notification process. There is no symmetry in the remedies between cable and Proximus nor between cable operators: instead cable networks have to bear the full regulatory burden in the form of a cost orientation requirement. Neither the single network SMP nor the collective dominance SMP findings contained in the Framework Decision support such an asymmetric (hence discriminatory) approach.

7. Even more disturbing is the fact that the Draft Decision is singling out Telenet and imposing on Telenet the hardest regulatory regime in various ways.

   – First, it does not adopt a model for a single "efficient operator" as foreseen in the 2013 Commission Recommendation, the Framework Decision and the initial consultation on the cost model. Instead, the Draft Decision adopts three different models to allegedly take account of underlying differences in terms of coverage between Telenet, Brutélé and Nethys and allows the two latter to apply higher access prices.

   – Second, Telenet is the alternative operator that has hitherto invested most in the roll-out of NGA in Belgium. It has played an essential role in making Belgium one of the leading countries in terms of (very high capacity) broadband penetration. The Draft Decision ignores this completely and is adopting a cost model which undervalues large portions of Telenet's investments and network (ranging from the acquisition of the coax to the investments made to upgrade the coax to a HFC network). The Belgian NRA's attempt to rely on the "regulatory asset base" valuation method to justify this is *contra legem* and discriminatory with other models and must be rejected.

8. The Draft Decision claims to implement the 2013 Commission Recommendation and the Framework Decision but it does not. It does not allow for cost recovery and imposes a remedy which in many respect is more stringent than what the Commission

region, the French-speaking region and the Germany speaking region. The latter decision does not apply to Telenet.

even advocates when a cost orientation remedy is imposed (which is not the case for the Framework Decision) nor is it applying what the Commission prescribes for NGA.

9. The lesson to be learned for Telenet seems to be that a strategy of solely investing in a mobile network, such as Orange Belgium has done, which is unregulated for wholesale access and which could, for years, be subsidized with termination rates can be highly beneficial. By not investing in the development of any fixed network it could keep regulatory leverage which now offers it subsidized access terms for the fixed component of their service offering. [redacted] (which, in turn, resulted in an additional wholesale access remedy for MVNOs which only applies to Telenet).

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1. GENERAL PRINCIPLES OF THE EU AND BELGIAN REGULATORY FRAMEWORK

10. Whilst NRAs have a certain margin of discretion in designing remedies and imposing a wholesale price remedy on operators found to have SMP, this discretionary power is not unlimited. NRAs are bound to observe certain principles which follow from legal requirements set forth in the EU and national regulatory framework. These principles are in particular: (i) the principle of proportionality and non-discrimination; (ii) the obligation for the NRAs to ensure that the proposed regulation achieves the objectives of the EU framework which includes the promotion of investments and achievement of the internal market (which translates in the NRA's obligation to "take utmost account" of the European Commission Recommendations which have been issued in relation to the regulation of wholesale broadband access), (iii) the principle of cost recovery; and (iv) consistency with the framework decision.

(A) Proportionality and non-discrimination

11. The guiding principles of the EU regulatory framework for telecommunications are the principles of proportionality and non-discrimination. As recognized by the European Electronic Communications Code ("**EECC**") in Article 3, "*Member States shall ensure that the national regulatory and other competent authorities act impartially, objectively, transparently and* ***in a non-discriminatory and proportionate manner***".

(i) Proportionality principle

12. Article 68 (4) EECC recognizes that *"[Access] [o]bligations imposed in accordance with this Article shall be: (a)* ***based on the nature of the problem*** *[…], (b)* ***proportionate, having regard, where possible, to the costs and benefit****, (c)* ***justified*** *[…]*" (emphasis added).

13. In line with established case law of the Court of Justice of the European Union ("**CJEU**"), proportionality is assessed in a three-stage test; for a measure to be considered proportionate, it should "*not exceed the limits of what is* ***appropriate and necessary*** *in order to attain the objectives legitimately pursued by that legislation; when there is a choice between several appropriate measures,* ***recourse must be had to the least onerous*** *among them, and the* ***disadvantages caused must not be disproportionate*** *to the aims pursued"*.[4]

14. The underlying market analysis and market conditions are important considerations in applying the proportionality test and NRAs bear the burden of proof to show the proportionality of the remedy, particularly when imposing more stringent requirements. Precedents confirm that the Commission has insisted on the fact that price control in general is an intrusive regulatory remedy that should only be imposed in cases where this is objectively justified and absolutely necessary.[5]

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4 Case C-528/13 of 29 April 2015, *Geoffrey Léger v. Ministre des Affaires sociales*, para. 58.

5 For example, in case PT/2015/1817, the Commission expressed serious doubts with the imposing of ex ante price control because there was "*not sufficient reason to impose a price control obligation as it is not based on sufficiently strong evidence of the likely development of a potential harm to competition in the relevant market. As a result and based on the information currently available, the Commission considers, that the imposition of any such intrusive remedy would not be objectively justified and also disproportionate*".

15. Courts have also verified effective compliance with this proportionality principle. Reference can for example be made to the *College van Beroep* which annulled the MTR regulation applying a pure LRIC model arguing that the proportionality of this methodology was not sufficiently demonstrated compared to the (less intrusive) LRAIC+ methodology.[6] Similarly, the Brussels Court of Appeal stated that the more the Belgian NRA is making modeling choices which depart from the economic reality of the regulated operator, the stronger the justifications must be to support these choices. The Belgian NRA must limit the divergence between the regulatory model and the operators reality.[7] A best practice to verify the proportionality of the regulation consists in conducting an impact assessment, particularly when a significant modification is being proposed[8].

(ii) Non-discrimination principle

Likewise, in case FI/2015/1723, the Commission considered that the NRA "*could limit the imposition of the more intrusive price control obligation only to those primary broadcasting sites that are truly non-replicable*."

6 See CBB 31 August 2011, ECLI:NL:CBB:2011:BR6195, paras. 4.8.3.1, 4.8.3.3, 4.8.3.4, 4.8.3.7: "*Het College ziet geen grond om te betwijfelen dat een tariefverplichting een geschikte maatregel is om voornoemde potentiële mededingingsproblemen te remediëren. […] Het voorgaande wil echter niet zeggen dat OPTA, gegeven de passendheid van een tariefverplichting als zodanig, bij de nadere invulling van deze tariefverplichting niet behoeft te onderzoeken of ook deze invulling passend is. Het College zal derhalve de vraag beantwoorden of een tariefmaatregel op basis van pure BULRIC passend is, dan wel OPTA met een lichtere vorm van tariefregulering had dienen te volstaan. […] Een tariefbepaling is passend indien deze is gebaseerd op de aard van het op de desbetreffende markt geconstateerde probleem en in het licht van de doelstellingen van artikel 1.3 Tw proportioneel en gerechtvaardigd is. […] De vraag die dient te worden beantwoord is of de aard van het geconstateerde mededingingsprobleem dusdanig is, dat tariefregulering op grond van pure BULRIC met de genoemde ingrijpende gevolgen als passend kan worden beschouwd. Het College volgt echter niet de redenering van OPTA dat uit het voorgaande volgt dat naast plus BULRIC ook pure BULRIC mag worden opgelegd. Pure BULRIC is immers een verdergaande vorm van tariefregulering dan plus BULRIC - er is geen mark-up voor niet-incrementele vaste kosten - en de tekst van artikel 6a.7, tweede lid, Tw ondersteunt geenszins de interpretatie dat een vorm van tariefregulering mag worden opgelegd die verdergaat dan een tariefmaatregel die reeds als kostengeoriënteerd kan worden aangemerkt. […] De conclusie luidt dat OPTA de MTA-tarieven niet heeft mogen baseren op pure BULRIC. […]*".

7 Brussels Court of Appeal, Case 2010/AR/2695, 29 June 2011, para. 28 : *"[…] si l'IBPT décide de baser les tarifs sur un modèle ascendant de couts, il incombe à l'Institut de comparer le résultat de cette approche avec celui base sur les données réelles […] et d'éviter de trop grandes divergences entre les deux. Cela signifie qui si le modèle ascendant a comme objectif légitime de corriger des inefficiences notamment au niveau des investissements de l'opérateur historique, l'écart observe entre le résultat des deux approches doit pouvoir être justifie par des indications suffisamment précises et objectives par rapport à la nature et la cause de ces inefficiences."*

8 See e.g., the Better Regulation Guidelines of the European Commission, available at http://ec.europa.eu/smart-regulation/guidelines/toc_guide_en.htm, p. 8-9: *"Impact assessments collect evidence (including results from evaluations) to assess if future legislative or non-legislative EU action is justified and how such action can best be designed to achieve desired policy objectives. An impact assessment must identify and describe the problem to be tackled, establish objectives, formulate policy options, assess the impacts of these options and describe how the expected results will be monitored."* The Belgian NRA has also, particularly when imposing new tariff regulations, conducted an impact assessment seeking to determine the all the effects of a proposed regulatory measures so as it calibrate its proportionality (e.g., the regulation of MTRs included simulations with potential impacts).

16. In accordance with established case law of the CJEU, the principle of non-discrimination requires that "*similar situations shall not be treated differently unless differentiation is objectively justified*".[9]

17. It follows that if the Belgian NRA has taken a certain approach when regulating one market or operator, it should take an equivalent approach when regulating an operator in a similar position. Any deviation from such an equivalent approach must be objectively justified.

(B) Cost recovery

18. The principle of cost recovery is an established concept in the EU framework. It is laid down in Article 74 (1) and (2) of the EECC, which states that "*to encourage investments by the undertaking, […] national regulatory authorities shall* ***take into account the investment made by the undertaking****. Where the national regulatory authorities consider price control obligations to be appropriate, they shall allow the undertaking a* ***reasonable rate of return*** *on adequate capital employed. […] National regulatory authorities shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote the deployment of new and enhanced networks*" (emphasis added).

19. The principle has also been recognized by the CJEU in *Arcor*, where it stated that "*cost-orientation […] is to be understood as the obligation […] to set* ***rates in accordance with the costs incurred*** *[…]* ***while deriving a reasonable return from the setting of those rates*** *in order to ensure the long-term development and* ***upgrade of existing*** *telecommunications infrastructures*".[10]

20. At national level, the principle of cost recovery has been established by the Brussels Court of Appeal. Whilst recognizing the ability for the Belgian NRA to exclude "inefficient costs", the Brussels Court of Appeal has also held that, if an operator can prove that investments made in the network correspond to market demand, and these are made in a competitive environment (*i.e.*, a liberalized environment), the Belgian NRA should take these investments into account when developing its cost model.[11] The Court of Appeal has recognized that the Belgian NRA cannot impose an operator to sell at a loss. [12] The Court has also emphasized the need for the NRA's cost model to stay as close as possible to the reality and costs of the regulated operator: "*il appartient à [l'IBPT] de construire son modèle de la façon la* ***plus réaliste possible****, en tenant dûment compte du* ***contexte*** *et des* ***faits*** *et* ***circonstances pertinentes*** *reflétant la réalité. […] Un tel modèle doit donc être le plus possible fondé sur des principes et des paramètres reflétant cette réalité de façon fiable*."[13]

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9 Joined Cases 117/76 and 16/77 of 19 October 1977, *Ruckdeschel v Council,* para. 7. See also Case C-550/07P of 14 September 2010, *Akzo Nobel v Commission*, para. 55.

10 Case C-55/06 of 24 April 2008, *Arcor v Germany*, para. 69 (emphasis added).

11 Brussels Court of Appeal, Case 2010/AR/2695, 29 June 2011, para. 33.

12 Brussels Court of Appeal « *le choix d'un modèle de coûts semble incompatible avec [le principe d'orientation sur les coûts] s'il conduit à l'application de prix trop élevés par rapport à la structure de prix d'un opérateur,* ***ou si ce modèle devait l'obliger de vendre à perte*** » . Bruxelles, 15 February 2011, Case R.G. 2010.AR/2003 (emphasis added).

13 Brussels Court of Appeal, Case 2010/AR/2695 of 29 June 2011, para. 28 al. 3 (emphasis added).

21. Cost recovery is also one of the underlying principles of Commission Recommendation 2013/466 on consistent non-discrimination obligations and costing methodologies ("**2013 Commission Recommendation**"). [14] This Recommendation provides guidance to NRAs for the development of cost methodologies, particularly for NGA networks. [15] Points 26 and 27 of the Preamble to the 2013 Commission Recommendation state in this respect that: "***Cost recovery*** *is a key principle in a costing methodology. It ensures that operators can* ***cover costs that are efficiently incurred*** *and receive an* ***appropriate return on invested capital****. A costing methodology that provides* ***the appropriate 'build-or-buy' signal*** *strikes an appropriate balance between ensuring efficient entry and sufficient incentives to invest*".

22. It follows that cost recovery should be the underlying principle of any pricing regulation. Investments made by Telenet should be appropriately rewarded and included in the cost model. In the present case and as demonstrated below, the pricing regulation should allow for more than a cost recovery given that the Framework Decision has not imposed a cost orientation obligation which was considered excessively restrictive. The obligation imposed is one of fair pricing which gives more flexibility to the SMP operator compared to the cost orientation remedy.

(C) Consistency with the EU objectives and Commission Recommendations

23. The duty of sincere cooperation enshrined in Article 4(3) TFEU prevents the NRA from adopting a measure that runs counter the objective of the Commission to consolidate the internal market which is another pillar of the EU framework.

24. The EECC further states that NRAs "*shall contribute to the development of the internal market by working with each other and with the Commission and BEREC, in a transparent manner, in order to ensure the consistent application, in all Member States, of [the EECC]. To this end, they shall, in particular, work with the Commission and BEREC to identify the types of instruments and remedies best suited to address particular types of situations in the market"*[16].

25. To ensure the consistent application of the regulatory framework, NRAs have to notify the proposed measures to the European Commission[17] and the Commission is entitled to comment on this measure or express serious concerns with it. The NRAs must take "utmost account" of the Commission's comments.

26. Another way in which the Commission attempts to further the internal market is by adopting Recommendations that lay down a uniform approach to regulatory remedies such as price control. Given the importance of wholesale broadband regulation, the Commission adopted two Recommendations (in 2010 and 2013) to ensure a greater

14 Commission Recommendation 2013/466 of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.

15 See also Annex 1, Section 3.1.

16 Article 7(2) EECC.

17 Article 32(3) EECC.

harmonization.[18] With these Recommendations, the Commission wanted to increase legal and regulatory predictability across the EU and ensure a far-reaching form of regulatory harmonization to trigger the necessary investment needed for NGA roll-out.[19]

27. Of particular importance in this context if of course the EU and national policies regarding NGA which should be leading in the regulatory choices the Belgian NRA is making in implementing the tariff regulation. The European and Belgian policy objectives confirm the priority given to investments in NGA roll-out so as to achieve a digital society.

28. The Europe 2020 strategy adopted in 2010 contained seven initiatives aimed at smart, sustainable and inclusive growth[20] and included "A Digital Agenda for Europe" with ambitious targets for the roll out of fast and ultra-fast internet. It is also in this context and with these objectives in mind that the Commission announced its intention to adopt (and also adopted) the 2013 Commission Recommendation:

"To foster the deployment of NGA and to encourage market investment in open and competitive networks the Commission will adopt a NGA Recommendation based on the principles that (i) investment risk should be duly taken into account when establishing cost-oriented access prices, (ii) National Regulatory Authorities should be able to impose the most appropriate access remedies in each case, allowing a reasonable investment pace for alternative operators while taking into account the level of competition in any given area and (iii) co-investments and risk-sharing mechanisms should be promoted."[21]

29. This Digital Agenda was updated in 2012[22] increasing the objectives in terms of broadband access:

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18 See 2013 Commission Recommendation cited above and Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) ("**2010 Commission Recommendation**").

19 See, for instance, 2013 Commission Recommendation: *"**One of the core objectives of the Digital Agenda for Europe is the deployment of next generation access networks (NGA Networks).** The Digital Agenda for Europe aims to support the substantial investments, which will be required in the coming years. **The present Recommendation aims to promote efficient investment and innovation in new and enhanced infra structures** whilst recognising the need to maintain effective competition, which is an important long-term investment incentive. The present Recommendation seeks: (i) to ensure a level playing field through the application of stricter non-discrimination rules; (ii) to establish predictable and stable regulated wholesale copper access prices; as well as (iii) to increase certainty on the circumstances which should lead to the non-imposition of regulated wholesale access prices for NGA services. **Increasing legal and regulatory predictability in this manner should further help to trigger the investment needed in the near to medium-term future.**"* (emphasis added).

20 Commission Communication "EU 2020, A strategy for smart, sustainable and inclusive growth", COM(2010) 2020.

21 Commission Communication "A Digital Agenda for Europe", COM(2010) 245 final/2, p. 20.

22 Commission Communication "A Digital Agenda for Europe", COM(2010) 245 final/2; Commission Communication "The Digital Agenda for Europe - Driving European growth digitally", COM(2012)785.

- by 2013, to bring basic broadband to all Europeans (> 144 Kbps and ⩽ 30 Mbps);
- by 2020, to ensure coverage of all Europeans with fast broadband (i.e. > 30 and ⩽ 100 Mbps);
- by 2020, to ensure take-up of 50 % or more of European households to ultra-fast broadband (i.e. > 100 Mbps).

30. In September 2016, the Commission also identified three strategic objectives for 2025 that complement those laid down in the Digital Agenda for 2020[23]:

- Gigabit connectivity for all main socio-economic drivers;
- all urban areas and all major terrestrial transport paths to have uninterrupted 5G coverage; and
- all European households, rural or urban, to have access to internet connectivity offering a downlink of at least 100 Mbps, upgradable to Gigabit speed.

31. In Belgium, in 2015, the Federal Government launched the Digital Belgium 2015-2020 initiative which had even more ambitious broadband targets than the Digital Agenda for 2020:

"The objective of the Digital Agenda for Europe is to ensure that by 2020 all Europeans have access to Internet speeds of at least 30 Mbps, and half of all households at least 100 Mbps. ***Belgium wants to go further. By 2020 at least half of the connections in Belgium must achieve Internet speeds of up to 1 Gbps.****"* [24] (emphasis added)

32. One of the objectives of Digital Belgium was to develop a common strategic vision of the roll-out of ultra-fast internet which, inter alia, aims to *"provide a coherent, stable framework for encouraging continued network investment."*[25]

33. These regulatory objectives have largely been achieved in the EU and with the assertive support of cable operators. Cable operators such as Telenet have made significant investments in their network by upgrading their coaxial networks and adding more optical fibre into the coaxial infrastructure in order to make it capable of providing very fast broadband services.

34. At EU level, by the end of June 2017, NGA coverage was at 80.1%. 44.7% of NGA coverage was contributed by the NGA cable technology DOCSIS 3.0.[26] The

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23 Communication from the Commission: Connectivity for a Competitive Digital Single Market -Towards a European Gigabit Society (COM(2016) 587 final).

24 Digital Belgium, Plan for ultra-fast internet in Belgium 2015-2020, p. 2.

25 Digital Belgium, Plan for ultra-fast internet in Belgium 2015-2020, p. 2.

26 Broadband Coverage in Europe 2017, Final Report, A study prepared for the European Commission DG Communications Networks, Content & Technology, p. 32.

Commission confirmed that *"[c]able networks continue[d] to be the second most widespread fixed access technology, reaching 45.1% of EU households."*[27]

35. In Belgium, by the end of June 2017, NGA coverage was at 99% of which DOCSIS 3.0 contributed 96.8% (!).[28] The Commission noted that *"the Flemish regions of Belgium registered complete NGA coverage, whilst NGA coverage in the Walloon regions ranged from 94% to 100%."*[29] Consequently, coverage for the 2020 target of at least 30 Mbps was at 98.4% (EU average: 79.0%) and the 2025 target for at least 100 Mbps already at 96.9% (EU average: 55.1%).[30]

36. There is also no discussion (and this has also never been contested by the Belgian NRAs) that the HFC network (*i.e.*, the upgraded cable network) is an NGA network with the capacity to deliver high speed broadband access services:

"*[…] NGA networks rely wholly or partly on optical elements and are capable of delivering broadband access services with enhanced characteristics. NGA networks currently comprise fibre-based access networks (e.g. FTTB, FTTH, FTTC/VDSL),* ***advanced upgraded cable networks*** *(HFC/DOCSIS 3.0), and certain advanced wireless access networks.*"[31] (emphasis added)

37. The Commission has also qualified next generation access as including "*VDSL, Cable Docsis 3.0 and FTTP.*"[32].

38. The above confirms that the Belgian NRA cannot claim a full discretionary power in regulating cable but should be observing and conform itself to the substantive policies as regards NGA networks which have been set at European and Belgian level and which also encompasses cable networks particularly where cable operators have invested on the basis of the legitimate expectations that the EU and national policies (and NRAs charged with their execution) would reward these investments.

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27 Broadband Coverage in Europe 2017, Final Report, A study prepared for the European Commission DG Communications Networks, Content & Technology, p. 6.

28 Broadband Coverage in Europe 2017, Final Report, A study prepared for the European Commission DG Communications Networks, Content & Technology, p. 56.

29 Broadband Coverage in Europe 2017, Final Report, A study prepared for the European Commission DG Communications Networks, Content & Technology, p. 58.

30 Broadband Coverage in Europe 2017, Final Report, A study prepared for the European Commission DG Communications Networks, Content & Technology, p. 58.

31 Wik Consult, *The broadband State aid rules explained*. *An eGuide for Decision Makers*, A study prepared for the European Commission DG Communications Networks, Content & Technology, para. 6.

32 Commission Staff Working Document, Impact Assessment, Accompanying the document, Proposals for a Directive of the European Parliament and of the Council establishing the European Electronic Communications Code (Recast) and a Regulation of the European Parliament and of the Council establishing the Body of European Regulators for Electronic Communications, COM(2016) 590 final, COM(2016) 591 final, SWD(2016) 304 final, p. 310.

(D) Consistency with Framework Decision

39. As the Draft Decision is an implementation of the 2018 Framework Decision, it cannot deviate from the general principles set in the Framework Decision ("*Patere Legem Quam Ipse Fecisti*").

40. In the Framework Decision, the NRA has set forth a market analysis and imposed remedies which the Draft Decision aims to implement after having approved "fair" tariffs for the interim period on the basis of Brutélé's tariffs which were considered to be reasonable also in comparison with the pricing applied in France[33]. If the Draft Decision were to impose measures which would be contradictory with the Framework Decision, the NRA would undermine the consistency of the regulatory framework and the legitimate expectations which the operators can have vis-à-vis the NRA and the regulatory obligations they impose.

2. IMPACT OF THE PROPOSED REGULATION AND ECONOMIC CRITICISMS

(A) The proposed tariff regulation, the deficient cost model and its detrimental effects for Telenet

41. In the Framework Decision, Brutélé, Nethys and Telenet are identified as having significant market power on the markets for central access and on the wholesale markets for access to broadcasting services. A series of remedies are imposed to address this alleged market power including a price regulation remedy. The Draft Decision implements the wholesale pricing obligation foreseen in the Framework Decision which requires cable operators to apply 'fair' prices. By 'fair', the Framework Decision refers to a price which may be higher than the costs but which continues to be related to the costs.

42. The Draft Decision proposes wholesale access prices for the following wholesale services: (i) central access to the cable network and (ii) access to the digital and analogue TV cable platform.

43. The costs taken into account in the model are: Network-CAPEX, Network-OPEX and overheads that includes general & administrative expenses as well as costs for IT systems. The resources needed in terms of CAPEX and OPEX are directly determined by the cost model and are, pursuant to the causality principle, allocated to the services using these resources. With respect to common costs which are not network-related, an equi-proportional mark-up method is applied.

44. Several elements of the model, which are discussed in the report prepared by e-Conomics and attached as Annex 1, are particularly disadvantageous for cable operators and Telenet specifically:

    (a) the model expects the network to maintain the same capacity and does not allow for an increase in fibre nodes and other capacity needed to serve additional demand. The model therefore assumes constantly improving economies of scale, which is unrealistic and leads to significantly lower modelled costs than will be the case in reality;

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33 See Framework Decision (for the Brussels Region) § 2586 and following.

(b) the use of economic depreciation is inappropriate and likely to result in under-recovery of costs because it depends on speculative demand forecasts over the long term. An annuity approach, possibly tilted on the basis of expected asset price trends, would be considerably more robust;

(c) co-axial cables and trenches are valued on the basis of their accounting value taking into account their depreciation to date. Fully depreciated assets are therefore valued at zero.

(d) because of demographic and geographic distinctions between the territories covered by the three cable operators, the model retains three distinct cable operators leading to a lower wholesale tariff for Telenet;

(e) Telenet model has a number of incorrect assumptions (which again are detrimental to it):

- it understates the amount of access network spectrum reserved for broadband capacity;
- it overstates the amount of urban cable systems and consequently underestimates overall costs;
- it does not include recurring cost pools such as network repositioning and cable replacement.

45. The Draft Decision further disadvantages Telenet because:

(a) specific IT expenses for wholesale access products are only partially included in the mark-up instead of being allocated in full. These expenses are partially left to the SMP operators;

(b) the Belgian NRA calculated an additional margin of 5%-10% on top of the outcome of the cost model for high speed profiles. However, the Draft Decision limits the application of this margin to broadband profiles above 200 Mbps which significantly limits the extra margin which the SMP operator can benefit from for investing in NGA and promote higher speeds.

46. Telenet would like to emphasize the fact that the wholesale pricing model should capture consumption and the Belgian NRA should reject any attempt to neutralize the consumption pattern in the pricing. Volume of consumption is driver in the value of the service and influences network investments. Wholesale pricing should also capture this to ensure that the access beneficiary contributes and has the incentives to ensure an efficient usage of the network. (Commercial and regulated) wholesale access pricing for mobile networks is also reflecting this which confirms the soundness of such a pricing.

47. An exercise which Telenet has not been able to conduct in its review of the model concerns the verification of the consistency of the inputs. Given the significant difference between the wholesale rates, Telenet also calls on the Belgian NRA to verify and ensure consistency of the data sets. While Telenet's account are transparent as it is a publicly listed company, this is not the case for the Walloon cable operators.

48. The resulting tariffs for both broadband and TV are well below the currently applicable wholesale tariff and impose a price decrease for Telenet estimated at almost 40% with respect to certain services.

49. Another inconsistency which Telenet wants to point out concerns the reference made to the invoicing which in §14 of the Draft Decision refers to Euro/Mbs/month/interconnectiepoort whereas § 16 subsequently only refers to Euro/Mbs/month. This point should be clarified.

50. The criticisms summarized above and set forth in Annex 1 show the fundamental flaws affecting the model and require the Belgian NRA to reconsider the model and conduct a new consultation round following this exercise.

(B) The proposed regulation undermines NGA investments and favors operators which did not invest

51. Leaving aside the criticisms associated to the model and the negative and discriminatory impact for Telenet as such there is also a fundamental opposition between the wholesale regulation being proposed and the policy objectives which the Belgian NRAs should be pursuing.

52. Creating the conditions in which network operators can invest in their own infrastructure is a key objective of the Electronic Communications Code (Art. 3 2(b)). Investment by multiple providers also supports dynamic efficiency by creating maximum choice and innovation for consumers. NRAs therefore need to recognize that when an access charge to an existing network is regulated, it has a spillover effect on investment in new networks by both access seekers and the owner of the regulated network.[34] The general consensus is that low access charges imposed on existing networks disincentivize both access seekers and network operators from investing in developing more advanced networks.

53. If access seekers can buy at a low price then it is better for them to do so than to take the risk of building their own networks. Should they decide to build they face an "opportunity cost" equating to the lost profit from access. They also do not have to take the risk of network build if demand is uncertain.

54. Network operators may also not be able to recover the investment in more advanced networks if the price of access to existing networks is low. This is because the current generation of network acts as a pricing anchor, restricting the price the operator is able to charge for the upgraded network. If the operator attempts to set too high a price premium for the new network, it will not attract the customers and revenue needed to earn a return on its investment. Cave (2014) sums this up in the context of copper and fibre networks when he states that "*unbundling which forces down the price of copper broadband is likely to have a restraining effect on fibre investment, by reducing the price of current generation broadband and thus the price which owners of fibre networks can charge"* (p. 679).

[34] See for example: WIK Consult (2011), Plum Consulting (2011), Bourreau, Cambini and Doğan (2012), Cave 2014, Grajek and Röller (2012).

55. This being the case, what are the likely effects of the Belgian NRA's decision on cable access pricing on both access seekers' (primarily Orange Belgium) and Telenet's investment incentives?

56. If an access seeker were to consider building its own network, rather than acquiring access to an existing network, one of the factors it would take into consideration is the current cost of wholesale access against the cost per customer of building its own network versus the retail price it can earn in the market. It would consider whether any increased profits that came from owning its own network would be enough to recover the costs of that investment. In other words, is it more profitable to build or buy network access?

57. [redacted]

[redacted]

59. Knowing this to be the case, a rational response for Telenet would be reduce further investment knowing that it cannot charge a price that will lead to a positive net present value within a reasonable period. In Nethys and Brutélé areas, these effects would equally exist despite the higher wholesale prices assuming they reflect higher wholesale costs.

60. The e-Conomics report attached as Annex 1 confirms that the Belgian NRA's cost model fails to provide the right incentives for investment. Artificially low wholesale access prices foreseen in the Belgian NRA's cost model will be a disincentive for Telenet and Proximus to make investments in fibre and hybrid fibre networks, while it also lowers the business case for Orange Belgium to roll out fibre.[36]

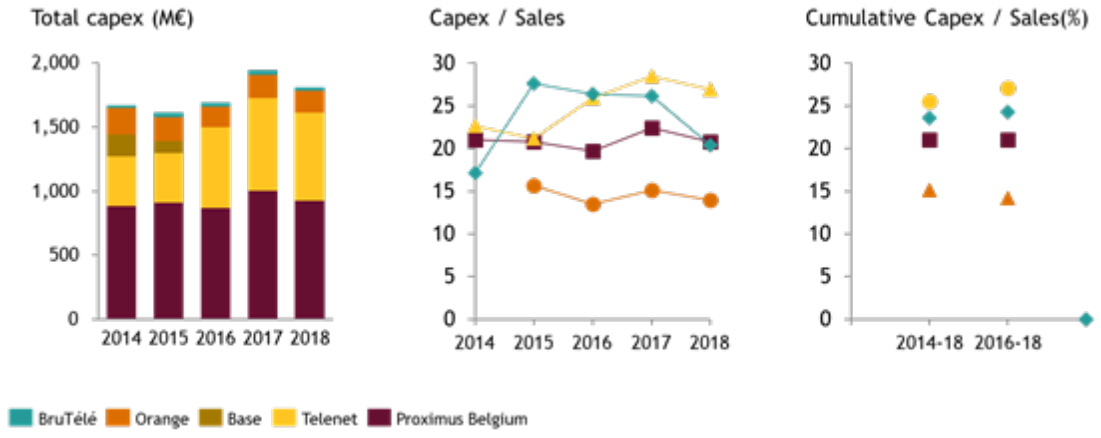
61. The Belgian NRA's proposed regulation is sending the opposite message and encouraging Orange Belgium for its no-investment strategy as it made little to no investments in NGA in Belgium.[37] As the below graphs demonstrate, Telenet has, on

35 Assumes 100Mbps access and 1Mbps peak usage.

36 Annex 1, Section 5.

37 During the past years Orange Belgium mainly invested in its mobile network, see , for instance, Annual Report 2013, p. 22: *"Mobistar introduces its ambitious EUR 150 million investment programme, intended to expedite the launch of its 4G network."*; Annual Report 2013, p. 55: *"Another important step forward in terms of investment and innovation was the global upgrade of Mobistar's radio network, in which the older*

average, invested 20%-25% of its revenues, while Orange Belgium (formerly Mobistar) has invested considerably less. Instead of investing in the roll-out of a fixed network, Orange Belgium has preferred to pay out shareholder dividends[38] and is now being rewarded for its free-rider strategy as it is the only (B2C) network operator which does not have a wholesale access obligation.[39] The Belgian NRA would err in thinking that the current pricing would alter this strategy of Orange Belgium. As it destroys NGA value Orange Belgium will have no (stronger) incentive to invest which would potentially lead it to lose the benefit of regulation.



62. The Belgian NRAs goes against the European and national policies referred to above which have consistently emphasized that NRAs should not be prioritizing short-term competitive objectives over investments:

"The imposition by national regulatory authorities of mandated access that increases competition in the short-term should not reduce incentives for competitors to invest in alternative facilities that will secure more competition in the long-term."[40]

Nortel 2G equipment was replaced with new and more performance-oriented Huawei 2G/3G/4G infrastructure. The investment programme, from its inception in 2011 to its conclusion in 2013, has led to a noted improvement of the network's 'deep indoor coverage' [...]"; Orange Belgium's activities in Belgium 3 May 2017, available at https://www.Orange Belgium.com/en/Group/Orange Belgium-in-the-world/countries/Orange Belgium-s-activities-in-Belgium: *"Investment in mobile networks remained strong with the steady deployment of 4G, mainly to expand coverage within homes, and to invest in the core transmission network.*"

38 See, for instance, http://www.tijd.be/netto/beleggen/Laat-u-niet-misleiden-door-aandelen-met-royale-dividenden/9290716: *"Mobistar is de absolute kampioen in het verwennen van zijn aandeelhouders. Op basis van de dividenden die de mobiele operator in 2011 toekende, biedt het aandeel een brutorendement van liefst 19,08 procent. Op plek twee staat het Belgacom-aandeel, met 9,80 procent. De telecomoperator stond lange tijd op nummer één, maar biedt toch nog altijd een erg aantrekkelijk rendement. Iets lager treffen we GDF Suez met 9,63 procent, Befimmo met 9,15 procent en Cofinimmo met 7,65 procent. Delhaize Group biedt een brutorendement van 5,8 procent, Elia van 4,4 procent."*; and also http://www.tijd.be/ondernemen/telecom/Vaarwel-Mobistar-welkom-Orange Belgium/9728711: *"**Telenet/Base gaat in investeringsmodus, terwijl Orange Belgium een cash cow is**"*. (emphasis added).

39 Compared to Telenet, Proximus, Nethys and Brutélé.

40 Recital 19 of Directive 2002/19/EC.

63. Similarly, the Belgian Federal Government recognized the importance of the creation of a coherent and stable regulatory framework to ensure the necessary investment:

"De overheid zal een gelijk speelveld creëren zodat alle dienstenaanbieders in de telecomsector in België op een evenwichtige manier kunnen concurreren. Een gezonde concurrentie zal operatoren aanzetten om te investeren in hun netwerk. ***Een samenhangend, toekomstgericht en stabiel kader is nodig om investeringen en innovaties aan te moedigen*** *zonder de concurrentie uit het oog te verliezen."*[41] (emphasis added)

64. BIPT's own 2014-2016 Strategic Plan confirms its intention not to jeopardize investment in NGA:

"Het [BIPT] zal nagaan wat het optimale evenwicht is tussen de infrastructuur- en dienstenconcurrentie ***zonder de innovatie en investeringen af te remmen****.*

[…]

Het BIPT zal zich buigen over de mogelijkheid en de opportuniteit om de toegang tot de vaste netwerken te reguleren, met inbegrip van de netwerken van de volgende generatie (NGA), ***zal bestuderen hoe het de uitrol van nieuwe diensten, breedband- en ultrabreedbandtechnologieën kan bevorderen*** *en zal telkens de optie kiezen van de meest stabiele en meest tijdbestendige regulering,* ***zonder de investeringen op het spel te zetten****."*[42] (emphasis added)

65. This policy objective was reiterated in BIPT's 2017-2019 Strategic Plan:

"De regulator zal er in dit verband naar streven om de juiste balans te vinden tussen het stimuleren van investeringen (kwaliteit van het netwerk en innovatie) en het bevorderen van duurzame concurrentie ten bate van de eindgebruikers (toegang, prijs en kwaliteit van de telecomdiensten)."[43]

66. The markets' reaction following the publication of the Draft Decision confirms the negative impact on Telenet and NGA investments set out above. Investment banks have clearly expressed concern that the proposed regulation is hitting cable investments to the benefit of access beneficiaries (Orange Belgium):

- "*We summarise the main catalysts for each stock below, and flag a net negative catalyst stream for Proximus, mixed for Telenet, and net positive for Obel but with a large tail risk. On Telenet (EW), we remain on the sidelines. Cable regulation, as well as increased competition, is likely to remain an overhang for now, while improved KPIs in Q2 could be tactically supportive. […]* ***We believe low visibility on regulatory and politically driven catalysts in Belgium should be an investment consideration***." [44] (emphasis added)

41 Algemene Beleidsnota, Digitale agenda 2017.

42 Strategisch plan van het BIPT 2014-2016, p. 14.

43 Strategisch plan van het BIPT 2017-2019, p. 20.

44 Morgan Stanley Research, Belgian Telcos, Where to now?.

- "*On Friday evening the BIPT and the media regulator published its draft decision proposing new monthly wholesale tariffs for access to the cable operators' networks. The draft decisions aim at promoting competition by ensuring that alternative operators pay a fair tariff to use these networks. Following the publication of the draft stakeholders can send their comments regarding these draft decisions until 6 Sept 2019.* ***Overall our initial take is this is a small negative for Telenet*** *(BUY rated) and small positive for Orange Belgium (HOLD).*" [45] (emphasis added)

- "*We expect Orange Belgium to trade up, while Telenet and Proximus should go down* […]".[46]

- "*We believe that that this publication is excellent news for OBEL (for its profitability, growth profile and market share), and* ***a material negative for TNET and PROX*** *(increased pressure on market share, ARPUs and profits). […] Our first take is that the BIPT is confirming a clear strategic intent to disrupt the Belgian Telecom market through increased competition […]* ***These gains will come at the expense of PROX and TNET, TNET, and will put pressure on average ARPUs for incumbents.***"[47] (emphasis added)

- "*Investment Conclusion:* ***Negative for Belgian telecom****. We regard this decision as positive for Orange Belgium and* ***negative for Telenet****, while also slightly moderately negative for Proximus*."[48] (emphasis added)

67. Proximus also reacted negatively indicating that the Draft Decision undermines investments in fibre networks: "*management believes that returns on fibre will be negatively impacted by the cable regulation if the proposed rates are not raised", a concern that is shared by Morgan Stanley: "the message on deteriorating returns on the proposed cable rate environment is not supportive for the story*".[49] The regulatory measure of the Belgian NRA is therefore not only bad for investments in cable networks, but also for fibre networks.

68. The Belgian NRA decision to kill NGA incentives and favour operators focusing on (limited) service competition is all the more remarkable as Orange Belgium was already successful with the current access pricing to build a customer base and should rather be incentivized to move up the ladder and invest in its own network. Based on the current wholesale access conditions, Orange Belgium's management reported that:

    - *"[…] As reminder, the Company expects cable a cable operations to achieve EBITDA breakeven by year operations*"[50]

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45 Deutsche Bank Research, Belgian Telecoms, Belgian cable wholesale access – mixed outcome.

46 Kempen Equity Research.

47 ING Equity Research.

48 Degroof Petercam Equity Research.

49 Morgan Stanley Research, Proximus: Thoughts post today's results.

50 Berenberg Telecommunications Research.

- "*Due to single installer costs will go down with at least 25%*"[51]

69. Analysts reports have also confirmed Orange Belgium's success on the Belgian market with the existing wholesale pricing which confirms that the alleged need to ensure the sustainability of (service) competitors cannot justify the significant increased regulatory pressure imposed on cable operators:

- *"[…] Cable EBITDA was positive this quarter[…]*"[52]
- *"[…] Orange Belgium had previously targeted cable wholesale break-even by end 2019 so, on very good execution, it has reached this target 6mths ahead of its originally target—a key positive in these results in our view. Furthermore, cable wholesale EBITDAaL break-even was achieved without lower cable wholesale rates which were recently proposed by Belgian regulator[…]*"[53]
- "*[…] The company notes that cable generated a positive EBITDAaL of €1.3m over H1, which implies a positive EBITDAaL of +€2.4m in Q2 (Q1 -€1.1m), which is a first for the business […]*"[54]
- "*Strategy is working […]*"[55]
- *"[…] The cable operations generated a positive EBITDAaL of EUR 1.3m in H1 […]*"[56]
- *"[…] EBITDAaL amounted to € 79m (kbcs: € 71m, css: € 69m) including a first time € 2.4m profit of the cable business […]*"[57]
- *"[…] Adjusted EBITDA 16% above consensus: Adjusted EBITDA increased by +18% YoY to €79m (cons €68m) driven by higher retail service revenues, cost control, cable operations improvement (€2.4m positive in 2Q19) […]* "[58]

70. Telenet's own analysis reveals that with the current wholesale pricing conditions and market developments, the cash flow breakeven will be achieved by Orange Belgium one year after the above-mentioned EBITDA breakeven.

71. The actual market situation and analysts' views set forth above confirm that Orange Belgium is able to successfully develop into a healthy competitive force on the Belgian market with the existing wholesale access rates. A drastic decrease in wholesale access price is therefore not justified by the need to safeguard effective competition whilst it

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51 *Ibid.*

52 Deutsche Bank Equity Research.

53 Crédit Suisse Equity Research.

54 JP Morgan Equity Research.

55 Barclays Equity Research.

56 Degroof-Petercam Equity Research.

57 KBC Equity Research.

58 Kempen Equity Research.

does significantly undermine the investments made by the cable operators and Telenet in particular.

3. ILLEGALITY OF THE DRAFT DECISION

72. We will demonstrate below that the Draft Decision runs afoul of the legal principles because of the following reasons:

(a) The Draft Decision is proposing a price regulation which goes beyond the fair pricing remedy foreseen in the Framework Decision and amounts to the most stringent form of cost orientation;

(b) The regulatory asset base (RAB) valuation retained in the model is illegal, contrary to the regulatory objectives and applied in an erroneous fashion;

(c) The Draft Decision cannot retain three different "efficient" cable operators which is discriminating Telenet compared to Nethys and Brutélé;

(d) The Draft Decision imposes a sale at a loss by not allowing a full recovery of the specific wholesale IT costs;

(e) The Draft Decision does not offer a sufficient incentive to invest with the proposed additional margin offered for investments allowing for speeds above 200 Mbps;

(f) The Draft Decision is discriminating Telenet compared to the regulation imposed on Proximus;

(A) The Draft Decision is proposing a price regulation which goes beyond the fair pricing remedy foreseen in the Framework Decision and amounts to the most stringent form of cost orientation

73. In the Framework Decision, the Belgian NRA imposed an obligation to apply fair prices for bitstream fibre and cable access. By 'fair', the Belgian NRA meant a price which may be higher than costs but which "remains cost-related", i.e. there could be a reasonable margin between the cost of the product and wholesale prices.

74. Pursuant to the Framework Decision, it was the Belgian NRA's intention to impose a less intrusive price remedy than cost orientation in order to ensure sufficient investment in NGA. The Framework Decision considered that the pricing remedy on cable for the central wholesale access (market 3b(2)) should be identical to the pricing remedy imposed for fibre. This symmetry in remedies reflects the identical SMP finding for Proximus and cable operators and the fact that the services which can be offered on upgraded cable networks are similar to the ones that can be offered on fibre. The same consideration regarding the need to promote investments therefore applies:

"De voor- en nadelen van elk van deze benaderingen werden geanalyseerd in deel 19.7.2. Het BIPT heeft uit deze analyse geconcludeerd dat een verplichting tot kostenoriëntering het meest gepast was in het licht van de nationale marktomstandigheden voor centrale toegang tot het kopernetwerk. Het BIPT was daarentegen van oordeel dat een verplichting om billijke prijzen te hanteren, beter geschikt was voor de diensten van centrale toegang tot het glasvezelnetwerk (deel 30.6.3. (met uitzondering van de verwante diensten waarvoor het BIPT heeft geoordeeld dat

een verplichting om kostengeoriënteerde tarieven toe te passen de meest geschikte maatregel was).

Om dezelfde redenen meent het BIPT dat de prijs voor centrale toegang tot het kabelnet ook een verband moet behouden met de kosten. Het is evenwel gerechtvaardigd om een bijkomende vergoeding toe te kennen voor de diensten van centrale toegang tot het kabelnetwerk tot bij de abonnee gezien het risico verbonden met de investering in de netwerken met (erg) hoge snelheid. Ook al rollen de kabeloperatoren momenteel geen glasvezel uit tot in de woning, ze investeren toch in de verhoging van de capaciteit van hun netwerken om zowel hun omroepdiensten als breedbanddiensten te verbeteren (getuige daarvan het project "De Grote Netwerf" van Telenet). Deze beslissingen om te investeren in de netwerken met (erg) grote capaciteit moeten worden genomen op basis van onzekere voorspellingen inzake het volume van de vraag en de toekomstige behoeften in termen van snelheden en verkeersvolumes. De kabelnetwerken kunnen overigens diensten aan met (erg) hoge snelheid vergelijkbaar met deze ondersteund door glasvezel. Welnu, er wordt door artikel 62, § 1, van de wet van 13 juni 2005 specifiek voorzien in een bijkomende vergoeding voor de glasvezelnetwerken. Dat wordt ook aanbevolen door de Europese Commissie: "De prijs voor toegang tot de ontbundelde vezellijn moet kostengeoriënteerd zijn. De NRI's moeten absoluut rekening houden met het bijkomende en kwantificeerbare investeringsrisico van de SMP-exploitant bij het bepalen van de prijs voor toegang tot de ontbundelde vezellijn." De Europese Commissie heeft de Belgische regulator specifiek verzocht om na te gaan of een harmonisatie van de huidige reglementering van de prijzen voor kabeltoegang met de berekeningsmethode van de kosten voor wholesalebreedbandtoegang geen geschikte oplossing zou zijn."[59] (emphasis added; footnotes omitted)

75. In the Framework Decision, the Belgian NRA specifically instructed itself to choose a remedy which promotes investment, innovation and better infrastructure in its implementation decision: *"Bij de keuze van de gepaste verplichtingen moet het BIPT: - efficiënte investeringen en innovatie in nieuwe en betere infrastructuur bevorderen […]"*[60]. This approach is in line with the 2013 Commission Recommendation which *"aims to promote efficient investment and innovation in new and enhanced infrastructures whilst recognising the need to maintain effective competition, which is an important long-term investment incentive"*[61] and *"aims to increase legal certainty and regulatory predictability in view of the long-term horizons for investment in NGA networks."*[62] Article 30 of the 2013 Commission Recommendation also confirms that the (strict) LRAIC+ methodology is only imposed where the NRA impose a cost orientation remedy (which is <u>not</u> the remedy imposed in the Framework Decision):

"For the purposes of setting copper and NGA wholesale access prices ***where cost orientation is imposed as a remedy****, where appropriate, proportionate and justified pursuant to Article 16(4) of Directive 2002/21/EC and Article 8(4) of Directive 2002/19/EC, NRAs should adopt a bottom-up long-run incremental costs-plus (BU LRIC +) costing methodology which includes a bottom up modelling approach using*

59 Framework Decision, paras. 2576-2577.

60 Framework Decision, para. 58.

61 2013 Commission Recommendation, rec. 3.

62 2013 Commission Recommendation, point 1.

LRIC as the cost model and with the addition of a mark-up for the recovery of common costs." (emphasis added)

76. These general principles set forth in the Framework Decision are largely ignored in the Draft Decision which imposes a price regulation which goes much further than what was initially conceived. The cost methodology relied on in the Draft Decision is based on a strict BU LRIC+ methodology and the Belgian NRA now, in contrast to the Framework Decision, refers to the fact that this methodology would be considered as the appropriate method in the 2013 Commission Recommendation when implementing a cost orientation remedy. The Draft Decision is therefore in fact imposing a cost-oriented tariff through the "back door", departing from the fair price remedy imposed in the Framework Decision. By doing so, the Belgian NRA is violating the legal principles set forth above (*patere legem* and the principle of legitimate expectations) which carry particular weight in this context given (i) the importance of long term regulatory certainty and predictability for NGA investments and (ii) the ambitious and unambiguous regulatory support that has been expressed for investments in NGA at European and Belgian level.

77. Moreover, by allowing only for a LRIAC + cost recovery, the Belgian NRA is opting for an intrusive cost model which has only been applied in instances where a cost orientation remedy was imposed and this severe form of regulation was considered necessary. In other regulations, including the previous cable regulation or the regulation of the wholesale line rental access, the Belgian NRA imposed less restrictive pricing remedies or less restrictive cost models.

78. The disproportionate nature of the proposed price regulation and inconsistency with the Framework Decision is confirmed by the fact that the Framework Decision justified the cable regulation on a notional combined market 3b (comprising Proximus and cable networks) in which the CRC found collective dominance which would justify the imposition of identical remedies to the ones imposed on the basis of the single dominance in the separate markets 3b(1) and 3b(2). This justification proved to be essential in the Commission's review which decided not to open a Phase II procedure on the basis of this alternative market analysis.[63]

79. The Belgian NRA should test the proportionality of the remedy against this same alternative market analysis in order to remain consistent with this additional (but essential in the adoption process) justification. The proposed strict price regulation which does not regulate Proximus and foresees three different models, cannot be reconciled with this joint dominance scenario in which both cable and Proximus' network are regulated on a single converged wholesale market. It therefore departs from the initial concept of alleged identical remedies for single or joint dominance

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63 Commission Decision concerning: Case BE/2018/2073: *Wholesale local access provided at a fixed location in Belgium* Case BE/2018/2074: *Wholesale central access provided at a fixed location for mass-market products in Belgium* Case BE/2018/2075: *Wholesale TV broadcasting in Belgium*, p. 16-17 : *"In fact, the Commission considers the supplementary analysis and the related finding of joint SMP a more appropriate and plausible approach to analysing the wholesale central access market. […] CRC is right to conclude that in both variants of market definition (cable and copper included in the same or separate broadband markets) and the resulting analyses of significant market power, it would be called upon to consider the appropriateness of the same type of regulatory obligations referred to in Articles 9 to 13 of the Access Directive. In line with previous Article 7 decisions* ***the Commission will, therefore, not object to the market definitions proposed by CRC, as a broader definition of market 3b (including the jointly dominant Proximus and cable operators) would, in the above described circumstances of the present case, not lead to a different regulatory outcome****."* (emphasis added; footnotes omitted).

scenarios. The Draft Decision foresees three different "efficient" cable operators allowing each of them to charge different (allegedly cost orientated) tariffs and leaves Proximus unregulated.

80. A comparison with the pricing remedy imposed in the Netherlands to address the joint dominance scenario confirms the inconsistency and disproportionality of the proposed price regulation with the Framework Decision. The ACM remedy addressing the (alleged) joint dominance leaves more flexibility to the SMP operators (i.e., it does not impose a cost orientation remedy[64]) and is identical to all operators (KPN and cable) who are found to have joint dominance. The European Commission confirmed the proportionality of this approach stating that: *"[i]n the context of imposing remedies on jointly dominant operators, the extent of* ***the obligations should therefore be limited to those that are necessary to disrupt the identified collusive equilibrium****. In principle, regulatory obligations imposed on one of the undertakings considered to be jointly dominant could be sufficient to restore effective competition* ***by ending the conditions conducive to tacit coordination around the identified focal point (actual or constructive denial of wholesale network access with a view to maintaining high retail prices)****"*[65] (emphasis added).

(B) The Draft Decision and the model undervalue investments and assets which should be valued at replacement costs

81. In Section 5.3 of the Draft Decision, the Belgian NRA sets out the applicable valuation and depreciation methodologies. According to the Belgian NRA, assets should be valued at current costs taking into account technological progress, i.e. for assets that are no longer replicable, the modern equivalent asset is taken into account.[66] As to depreciation, the Belgian NRA holds that the economic depreciation methodology should be relied on.[67]

82. With respect to co-axial cables and civil engineering assets, the Belgian NRA finds that, pursuant to the 2013 Commission Recommendation, a different cost method can be set whereby it applies *"the regulatory accounting value net of the accumulated depreciation at the time of calculation, indexed by an appropriate price index, such as the retail price index."* [68] Pursuant to this methodology, the Regulatory Asset Base ("**RAB**") for these assets is determined on the basis of the accounting value indexed by the Belgian retail price index. Assets that are fully depreciated are therefore excluded. HFC networks, in particular the co-axial element of these networks, are considered largely sunk costs, with forward looking investments in new and replacement co-axial cables and associated civil works likely to be insignificant.

83. The Belgian NRA considers that this proposed approach is in line with the logic expressed in the 2013 Commission Recommendation which foresees the exclusion of

64 But rather leaves scope for commercially negotiated tariffs before any regulatory intervention.

65 Commission Decision concerning Cases NL/2018/2099 and NL/2018/2100: *Wholesale fixed access market in the Netherlands*, p. 11.

66 Draft Decision, para. 70.

67 Draft Decision, para. 75.

68 2013 Commission Recommendation, point 34.

reusable civil works that are not going to be replaced in the future. It refers in particular to Article 32-34 of the 2013 Commission Recommendation.

84. This proposed valuation is flawed in several respects insofar as the model:

a) departs from the over-arching principle of cost recovery set forth in the 2013 Commission Recommendation;

b) illegally extends the notion of reusable civil engineering assets to buried coax;

c) applies the RAB method which is not the appropriate valuation method in this instance;

d) deviates from the Commission and NRA practice;

e) discriminates cable networks compared to other regulated networks and models adopted by the Belgian NRA;

f) fails to reflect a proper asset lifetime of 20 years for the coaxial assets covered by the RAB methodology;

(a) The model departs from the principle of cost recovery set forth in the 2013 Commission Recommendation

85. According to the Commission, "*the basic challenge the Recommendation seeks to address is to bring consistency to NRAs' decisions, thereby creating regulatory certainty for undertakings,* ***so as to ensure timely and efficient investment in NGA networks throughout the single market***"[69] (emphasis added). The Commission made it clear that *"[t]he objective of the Recommendation is to promote a common regulatory approach by NRAs, and* ***to provide a predictable framework for investors in local loop unbundling and NGA networks***."[70] (emphasis added)

86. The Commission warned NRAs that uncertainty with respect to investment amortization perspectives could hinder necessary investments in NGA, since operators would not be able to recoup these costs from customers and operational efficiency alone would not suffice:

"The economics of NGA deployment (by SMP-operators and their competitors) are challenging, as average deployment costs are about €150-300 for VDSL and about €1500 for FTTH. ***This elevated bloc of fixed costs contrasts with as yet unclear investment amortization perspectives, as there probably will not be outsize increases in consumers' willingness to pay for the total bundle of electronic communications and broadcasting services – likely are ARPU increases for telecommunications operators of about 10-15%20 -, and improvements in operational efficiency alone***

69 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 15.

70 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 16.

might not be sufficiently large. Regulators thus need to be careful in setting good incentives for such investment."[71] (emphasis added; footnotes omitted)

87. The Commission was concerned about the fact that *"investing firms have an increased risk of not being able to recoup their initial capital outlays."*[72] The Commission recognized that this could be detrimental to consumers:

"This risk is even more pronounced in the presence of uncertainty over future regulatory treatment. If one assumes that the benefits flowing to society from wide availability of FTTH networks are larger than those resulting from merely partial upgrades of copper networks, then ***uncertainties attaching to future regulatory treatment resulting in forestalled investment - or in a general preference for defensive and comparatively low-risk projects – will lead to lower consumer welfare over time****."*[73] (emphasis added)

88. For this reason, the Commission set forth two guiding principles in the 2013 Commission Recommendation for the determination of wholesale access pricing.[74]

- The first one is cost recovery: "***Cost recovery*** *is a key principle in a costing methodology. It ensures that operators can* ***cover costs that are efficiently incurred*** *and receive an* ***appropriate return on invested capital***" (emphasis added).[75]

- The second principle is the achievement of a balance between enabling entry and providing sufficient incentive to invest ('build-or-buy' balance - Point 24 of the Preamble).

89. These principles are ascribed to by BEREC as it considers that, with respect to NGA-based wholesale access, "*in order not to distort the make-or-buy decision of alternative operator and incentivize investment by all market participants, the rate-of-return must be risk-adequate and the access price needs to be reflective of the efficient costs.*"[76]

90. The need to protect investments and have a less intrusive application of the pricing principles set forth in the 2013 Commission Recommendation carry even more weight in the present instance given that the remedy imposed is not a remedy of cost orientation but of "fair pricing". As indicated the above, the Framework Decision confirms that the reliance on 'fair tariffs' is aimed at offering more flexibility in comparison with

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71 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 15.

72 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 18.

73 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 18.

74 See also Annex 1, Section 3.1.

75 2013 Commission Recommendation, rec. 23.

76 *Challenges and drivers of NGA rollout and infrastructure competition*, 6 October 2016, BoR (16) 171, p. 33.

cost orientation which is the stricter remedy which the 2013 Commission Recommendation aims at implementing further.

91. Under the 2013 Commission Recommendation, the general rule is that all assets are valued on the basis of current costs and, in particular, on the basis of the replacement cost methodology which encompasses the costs to acquire the same asset in existing condition.[77] The valuation based on net book value is only be applied in exceptional cases which should, in accordance with the proportionality principle set out in Section 1(A) above, be interpreted strictly.

92. This can also be seen in points 33 and 34 of the 2013 Commission Recommendation, which state that "*NRAs should value all assets constituting the RAB of the modelled network on the basis of replacement costs, except for reusable legacy civil engineering assets. NRAs should value reusable legacy civil engineering assets and their corresponding RAB on the basis of the indexation method. Specifically, NRAs should set the RAB for this type of assets at the regulatory accounting value net of the accumulated depreciation at the time of calculation*". Thus, all assets should be valued based on actual cost, except for certain limited elements (i.e. reusable civil engineering assets) which have already been recovered. With regard to these elements, a special "indexation method" can be employed, and "*engineering assets that are fully depreciated but still in use*" must be excluded from the RAB. This exception must be construed in a restrictive fashion as it is an exception to the broader principle of cost recovery based on replacement costs.

93. This is confirmed by BEREC which provides the following interpretation of the aforementioned paragraphs of the 2013 Commission Recommendation: *"As known, in compliance with recommends 33-34 of the Recommendation, all assets of the modelled network should be evaluated on the basis of replacement costs, except for reusable legacy civil engineering assets, that should be valued on the basis of the indexation method, starting from the regulatory accounting value, or/and on the basis of a benchmark of best practices in comparable Member States. Following recommend 36 of the Recommendation, the lifetime of the civil engineering assets should be set at a duration corresponding to the expected period of time during which the asset is useful to the demand profile (normally not less than 40 years in the case of ducts)."*[78]

(b) The model illegally extends the motion of reusable civil engineering assets to buried coax

94. According to point 6(r) of the 2013 Commission Recommendation, 'reusable civil engineering assets' are defined as "*legacy civil engineering assets that are used for the copper network and* ***can be reused to accommodate an NGA network***". By contrast, "non-reusable civil engineering assets" are defined in recommendation 6(o) as "*those legacy civil engineering assets that are used for the copper network but* ***cannot be reused to accommodate an NGA network***". The approach taken in the definition of

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77 2013 Commission Recommendation, rec. 33: *"Valuation of the assets of such an NGA network at current costs best reflects the underlying competitive process and, in particular, the replicability of the assets."*; 2013 Comission Recommendation, recommend. 33: *"NRAs should value all assets constituting the RAB of the modelled network on the basis of replacement costs, except for reusable legacy civil engineering assets."*; See also Annex 1, Section 3.1.

78 BEREC Report Regulatory Accounting in Practice 2014, 26 September 2014, BoR (14) 114, p. 30.

"reusable" is therefore functional, focusing on the question whether it is practically possible to reuse the civil engineering assets for NGA networks.

95. The Recommendation does not define the term "civil engineering asset". However, it does explain in recital 34: "***Unlike assets such as the technical equipment and the transmission medium (for example fibre)**, civil engineering assets (for example ducts, trenches and poles) are assets that are unlikely to be replicated*" (emphasis added). It follows that technical equipment and transmission media such as co-axial cables, are to be distinguished from civil engineering assets.

96. To give some practical examples of what "reusable civil engineering assets" may constitute, Article 72 of the EECC for example states that, "*civil engineering [assets include], but [are] not limited to, buildings or entries to buildings, building cables, including wiring, antennae, towers and other supporting constructions, poles, masts, ducts, conduits, inspection chambers, manholes, and cabinets*".

97. In line with the EECC, paragraph 11 of the 2010 Commission Recommendation defines civil engineering infrastructure as follows: "*physical local loop facilities deployed by an electronic communication operator **to host** local loop cables such as copper wires, optical fibre and co-axial cables. It typically refers, but is not limited to, subterranean or above-ground assets such as sub-ducts, ducts, manholes and poles*." (emphasis added).

98. Co-axial cables can therefore not be considered civil engineering assets and these should not be valued in accordance with the RAB methodology.[79]

99. Moreover, the coaxial network which Telenet is using for the provision of its broadband and digital TV services is a network which was acquired from the *intercommunales* and which was significantly upgraded in order to allow for the provision of bi-directional services and broadband services. The upgrade of the network means that the coax is not simply reused. The coaxial network is now a Hybrid Fibre Coax ("**HFC**") network which includes a significant fibre component and qualifies for this reason as NGA.

100. During the period 2006-2010, Telenet spent around EUR 325 million on its network. Telenet has invested an additional EUR 1.3 billion in network growth during the period 2011-2018. This means that a total of EUR 1.65 billion was spent on the improvement of the network during the past 12 years (leaving aside the initial acquisition).

101. These investments were made in a competitive environment without benefiting from any monopoly or special right. The Belgian NRA's proposed regulation depletes the value of these investments by treating the coaxial network in the same fashion as the inherited civil engineering assets foreseen in the 2013 Commission Recommendation. What the Belgian NRA does in reality is to sanction Telenet for being one of the first operators in Europe to have invested in cable networks and upgrading them to an NGA network. Telenet did over the last fifteen years what the 2013 Commission Recommendation wants to promote with the current NGA regulation. Its investments

79 See also Annex 1, Sections 3.1 and 4.5.2.

and the value of the coaxial network should therefore be fully included in the cost base in accordance with the current cost method.[80]

102. Furthermore, it must be noted that the 2013 Commission Recommendation was adopted with a particular focus on copper twisted-pair networks. As a result, it does not specifically (and was not intended to) address the case of coax cable networks. In contrast with the Telenet coax cable networks, in most copper twisted-pair networks the wire is laid in ducts, and those ducts can be re-used for other wires (copper or fibre) that may subsequently be installed in them. For this reason the ducts, (and the trenching which were incurred in order to install those ducts), may be considered reusable (by both the SMP operator and access seekers) and unlikely to be replicated, since alternative suppliers would rather simply use the existing ducts, should access to them be available on reasonable terms.[81]

103. However, Telenet buries coaxial cables without prior separate ducting. Thus, as Telenet progressively replaces the coaxial cable with fibre (in order to increase its number of optical nodes, and to take those nodes ever closer to the customers' premises), it must dig new trenches into which the fibre is laid. The existing trenches are therefore clearly not reusable for the fibre cables. An alternative operator is also not able to reuse the trenching costs incurred to deploy the coaxial cable as a means of installing fibre, since there are no ducts through which to pull its fibre optic cables. The alternative operator would therefore need to replicate this infrastructure including the digging of (new) trenches. This means that the trench costs are really just the costs of installing the transmission medium and that these trenches are not reusable.[82]

104. There is a clear parallel between the evolution of Telenet's coaxial cable network, and the evolution of a traditional telecommunication company's directly buried copper twisted-pair network. In both cases, in order to be able to offer customers faster access speeds, and to cope with increased usage demands, fibre nodes must be placed closer and closer to the end customers' premises. In both cases, where the buried copper/coaxial cable is replaced with fibre, new trenches must be dug. In both cases, the length of the remaining copper/coaxial cable reduces over time. Finally, in both cases, the eventual end result will be a pure fibre network.

105. The fact that there are no ducts available does not mean that, in the absence of ducts, the coaxial cables can be considered civil infrastructure instead. The 2010 Commission Recommendation contains a restrictive definition of civil engineering infrastructure which includes only "*physical local loop facilities deployed by an electronic*

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80 Leaving aside that the network should in reality not even be regulated.

81 See Annex 1, Section 4.5.2.

82 See Annex 1, Sections 3.2.3 and 4.5.2: *"It is important in this context to note that trenches are not physical assets in the manner of ducts, poles or manholes. Trenching is the capitalised installation cost for another asset, either ducts (in the event that they are deployed) or cables (in the event that they are directly buried). Trenches are therefore reusable only to the extent that the installed physical asset, to which trenching costs are allocated, are themselves reusable* […] *The trench costs are really just the costs of installing the transmission medium, these trenches are not reusable, and they should be treated in the RAB in exactly the same way as the coaxial cable."*.

communications operator ***to host local loop cables such as copper wires, optical fibre and co-axial cables***".[83]

106. Finally, the 2010 Commission Recommendation defines NGA Networks as "*networks which consist wholly or in part of optical elements*". Since coaxial networks also consist of optical elements, coaxial networks should be considered NGA networks and not civil engineering assets according to the definition of the Commission.

107. As demonstrated in the e-Conomics report contained Annex 1, the exclusion of the directly-buried coaxial cables and the trench costs from the costs considered for cable access has a material impact on the outcome of the model.[84]

(c) Applying a RAB methodology is economically inappropriate

108. Leaving aside the fact that the coax does not fit within the restrictive exception foreseen in the 2013 Commission Recommendation it is also wrong as a matter of principle to apply the RAB method in this instance as it does not comply with the economic fundamentals of when RAB can be used. The reasons for this are set out below.

(i) RAB is designed for a monopoly

109. Helm (2018)[85] explains that the RAB is best suited to a monopoly, because it places risks on consumers who must commit to purchasing from the monopoly. He states:

"*The RAB (…) works best when there is a monopoly charging base – a use of systems charge that customers cannot escape. This charging base is the other side of the contract: the investors take the upfront risk in the interests of consumers, and consumers cannot ex post opt out. They cannot behave opportunistically and hence in a time inconsistent way. If consumers want investors to risk their capital, they have to commit to paying, and that is what the RAB model does*".

110. Helm's view is supported by Stern (2014)[86] who explains that:

"*The current British RABs evolved following the privatization of the UK network infrastructure industries as a regulatory device to reassure investors – and hence keep down the cost of capital*".

111. This is clearly not the case in the broadband access market in Belgium. Although BIPT has found cable and copper/fibre to be in separate markets at the wholesale level (leaving aside the notional broader market which was considered the correct analysis by the Commission), it has found them in the same relevant market at retail level. Thus a consumer does not make any commitment to purchase from the cable provider and so can behave in a time inconsistent manner by switching to a different network.

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83 2010 Commission Recommendation, para. 11.

84 Annex 1, Section 4.6 and Section 5.

85 Helm, D. (2018) *'The Nuclear Model'* Energy Futures Network Paper No. 27

86 Stern, J. (2014). *'The role of the regulatory asset base as an instrument of regulatory commitment.'* Eur. Networks L. & Reg. Q., 29.

112. If the access seeker loses the end consumer, then it can cancel the line with the network operator. Investors cannot be reassured in a competitive market where consumers can switch to alternative providers.

113. One of the fundament purposes of the RAB, protecting the investor's up front risks, simply cannot be met in the Belgian environment.

(ii) Investment incentives

114. Under the RAB approach, the regulator needs to take account of Assets Under Construction (AUC) and when AUC become part of the RAB. Helm (2018) explains they would need to align on key milestones, efficiency tests and cost estimates for the next period. This may be a sensible solution in a monopoly environment, but is unworkable when the firm faces competition as the negotiation with the regulator will take time and impose a delay during which the competitor may gain an advantage.

115. A key feature of HFC networks is that they are constantly being updated to improve the consumer experience. These investments involve increasing the amount of fibre in the network and reducing the number of households per fibre node. Telenet has been undertaking such investments over the past decade and planned to continue to do so over the next ten years.

116. It would clearly be incompatible with a dynamic competitive market (and the liberalized environment) for the operator to have to discuss such investments, and when the capital expenditure can be brought into the RAB, with the regulator

117. There would, therefore, be no equivalent regulatory lag on these physical infrastructure investments.

(iii) Capex Bias

118. The third fundamental issue with the RAB is that it can create a capex bias, which could lead to inefficient investment (Makovsek and Veryard 2016)[87].

119. The cost modelling approach taken by BIPT is to calculate the RAB and then remove those assets that are fully depreciated. The purpose behind this is to prevent the regulated operator over-recovering costs by preventing it earning a return on assets that have an economic life remaining but which are fully depreciated.

120. Any capital expenditure on assets that belong in the RAB, for example replacement of the coax with fibre, would of course not be fully depreciated and so brought into the RAB.

121. This has led to some concern that the RAB could lead to a "capex bias" which is similar to the well-known Averch-Johnson[88] effect in rate of return regulation: something which charge controls were designed to replace.

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87 Makovsek, D. & Veryard, D. (2016) '*The Regulatory Asset Base and Project Finance Models: An Analysis of Incentives for Efficiency'* OECD International Transport Forum Discussion Paper 2016-1

88 Averch, H., & Johnson, L. L. (1962). '*Behavior of the firm under regulatory constraint.'.* The American Economic Review, 52(5), 1052-1069.

122. The capex bias works as follows.

123. The regulated operator is permitted to earn a return equivalent to its RAB multiplied by its regulated cost of capital. The regulated price is set as: $P_R = \text{opex} + (\text{RAB} \times \text{WACC}_R)$ Where the subscript R refers to "Regulated", i.e. set by the regulator.

124. The only way the regulated firm can increase its profits is to increase the RAB and so it may prefer to invest in capital rather than reducing operating costs which may result in inefficiencies. For example, it may prefer to increase the capacity of its network rather than using a video compression technique that reduces the amount of data passing over the network. Whilst an increase in OPEX would lead to an increase in price, it would not affect the firm's return on investment.

125. Such an approach runs counter to the economic foundations of competition.

(d) The RAB methodology is not in accordance with the Commission's and NRAs' practice

126. The Commission has already criticized regulatory measures that allowed only a partial recovery of costs. In its decision in case HU/2018/2107, the Commission stated that "*[a] cost recovery mechanism, which allows for the recovery **of only direct costs**, **and not those infrastructure costs, which are shared with other services**, **may not allow a sufficient return on capital***." The Commission went on to state: "*where the costs of replacing or replicating leased lines **are above the costs recovered** through regulated access prices, this will **not promote efficient investments** or promote sustainable (infrastructure) competition*." (emphasis added).[89]

127. Furthermore, in case LT/2016/1839, the Commission stated that "*the methodology chosen by RRT can compromise this stability in the long term. Indeed, in particular the choice of HCA for all assets in the cost model can potentially lead to very low access prices. A FDC HCA model is unlikely to send the appropriate build or buy signals, in particular when pricing access to legacy assets that may have been substantially depreciated, but which could be replicated in the competitive process, such as technical equipment or the transmission medium.*"[90]

128. It follows that, as expressed in the 2013 Commission Recommendation, the Commission considers cost recovery a guiding principle. A partial cost recovery as proposed by the Belgian NRA in its cost model is not in line with the legislative framework.

129. In its *Report on challenges and drivers of NGA rollout and infrastructure competition*, BEREC explicitly considers the need to include all efficient cost elements:

*"The incumbent's as well as alternative operators' investment incentives are determined to a large degree by the pricing of the aforementioned access remedies. **In the case of NGA-based active wholesale products**, **lower access prices will ceteris paribus lead to lower returns on NGA investments** for the incumbent operator […].*

89 Commission Decision concerning Case HU/2018/2107: *wholesale high quality access provided at a fixed location in Hungary*, page 9.

90 Commission Decision concerning Case LT/2016/1839: *Wholesale central access provided at a fixed location for mass-market products in Lithuania*, pages 7-8.

Therefore, if cost-orientation is imposed, in order not to distort the make-or-buy decision of alternative operator and incentivise investment by all market participants, ***the rate-of-return must be risk-adequate and the access price needs to be reflective of the efficient costs.*** *"*[91]

130. The Irish NRA differentiated between the following assets in setting the tariffs for wholesale fixed access:

"1. ***Reusable passive civil engineering assets*** *i.e., assets which can be reused for NGA and which include duct, trenches, chambers and poles (referred to as '****Reusable Assets****').*

2. Other passive local loop assets and non-reusable civil engineering assets: i.e., assets including the network termination unit ('NTU'), final drops, Dside cables, E-side cables, cabinets, and main distribution frames ('MDFs') as well as passive civil engineering assets which cannot be reused for NGA because they cannot support new additional cables, for example. Therefore, ducts, trenches, chambers and poles on the D-Side and on the E-Side which cannot be reused for NGA are also included in this category. All of these assets are referred to as 'Non-reusable Assets'.

3. Active assets i.e., electronic equipment such as voice and digital subscriber line ('DSL') cards and backhaul used for SB-WLR and SABB services."[92] (emphasis added)

131. It only applied the RAB indexed methodology to reusable assets as defined above, i.e. reusable passive civil engineering assets, and it applied the *BU-LRAIC+ methodology* for the valuation of the other assets:

"Eir's Indexed RAB should be applied to Reusable Assets (and non-replicable assets) where the objective is to ensure that there is no over-or-under recovery of costs. The BU-LRAIC+ methodology should be applied to Non-reusable Assets (or replicable assets) where the objective is to encourage the deployment of alternative infrastructure. For active assets (line card, backhaul, etc.) a BU-LRAIC+ methodology should be applied with an adjustment for economies of scale."[93]

132. The rationale for this costing methodology was, inter alia, to encourage investment:

"The difference between Reusable Assets and Non-reusable Assets is that copper cables will be replaced by fibre cables in the future while trenches and ducts can be reused for NGA purposes. Even if, to date, copper cables are only being replaced by fibre cables by Eir in the Exchange side (or E-side) of the network, there are plans by operators, including SIRO and Eir, to further deploy fibre up to the home (FTTH). Therefore, the rationale is to consider that all cables (Distribution side (or D-Side) and E-Side) will at some stage in the medium to long term be replaced by fibre. Hence, copper cables are defined as Non-reusable Assets.

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91 BEREC, *Challenges and drivers of NGA rollout and infrastructure competition*, BoR (16) 171, pages 32-33 (emphases added).

92 Pricing of Eir's Wholesale Fixed Access Services: Response to Consultation Document 15/67 and Final Decision, ComReg 16/39, 18 May 2016, D03/16, paras. 4.79.

93 Pricing of Eir's Wholesale Fixed Access Services: Response to Consultation Document 15/67 and Final Decision, ComReg 16/39, 18 May 2016, D03/16, paras. 4.161-163.

Furthermore, for Non-reusable Assets, it is important to send the correct build or-buy signal, so that an OAO is encouraged to take an efficient investment decision. ComReg believes that such a build-or-buy signal is best ensured by adopting a BU LRAIC+ methodology, based on replacement costs. In Chapter 4, paragraph 4.147 of the Consultation Document ComReg specified that unlike the Reusable Assets, the copper cables or Non-reusable Assets, especially in the LEA, are likely to be replaced by optical fibre — at least on the E-side. ComReg considers that in these areas OAOs should be encouraged to invest in the alternative NGA-based infrastructure."[94]

(e) The application of RAB is discriminatory

133. The proposed cost model is discriminatory insofar that Mobile Network Operators ("**MNO**") have been able to receive for their (regulated) voice termination services a compensation.

134. BASE (now part of the Telenet) had already submitted a model prepared by WIK in the context of the regulation of what was then market 7 (mobile termination) that only the termination revenues had already allowed Proximus and Mobistar to recover the efficient investments of the modeled efficient operator. This did not however prevent the Belgian NRA from including an economic valuation of the network assets in the theoretical cost model, without having regard to the fact that at least Proximus and Mobistar had already largely recovered their investments.[95]

135. Given that the termination service is a reciprocal bottleneck service with a (strict) cost orientation remedy, it is evident that the proposed regulation and undervaluation of coax goes way beyond what is proportionate and acceptable.

(f) The RAB asset life should be 20 years instead of 35 years

136. The Belgian NRA's cost model appears to rely on a RAB asset lifetime of 35 years to determine the net replacement costs of these assets.[96] This is neither consistent with the 2013 Commission Recommendation (which foresees a term of 40 years for non-replicable and re-useable civil engineering assets) nor with Telenet's actual value of 20 years for the combined access network investment which was communicated to the Belgian NRA.[97] Furthermore, in the Proximus cost model, the Belgian NRA relies on an asset lifetime of 20 years instead of 35 years and there is no justification to deviate from this timeframe in the cost model for cable. Third, 35 years of asset lifetime is unrealistically long given that the majority of the asset base consist of buried cables which have a shorter lifetime, as demonstrated by Telenet's actual value of 20 years. In any case, however, the Belgian NRA's current approach to rely on a RAB asset lifetime of 35 years is inconsistent with its approach to exclude all assets which are older than 20 years.

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94 Pricing of Eir's Wholesale Fixed Access Services: Response to Consultation Document 15/67 and Final Decision, ComReg 16/39, 18 May 2016, D03/16, paras. 4.129-4.130.

95 WIK Consult, Detrimental Effects of Symmetric Mobile Termination Rates on Competition in Case of Asymmetric Competitive Market Conditions – The Case of Belgium.

96 See Annex 1, Section 4.5.1.

97 See Annex 1, Sections 4.5.1 and 4.5.3.

(C) Illegality of the reliance on three models of "efficient" operators

137. In the Draft Decision, the Belgian NRA decides to abandon of the adoption of a single cost model because demographic and geographic distinctions between the territories covered by the three cable operators.[98]

138. Apart from the specific problems with the Telenet model highlighted in Section 4.3 of Annex 1, the departure from the single cost model is in itself legally flawed.

139. This methodological change deviates from the 2013 Commission Recommendation and the Framework Decision which the Belgian NRA has to observe in its implementation decision. The 2013 Commission Recommendation refers to an "efficient operator", clearly retaining a single operator as a basis for calculating the relevant efficient costs.[99]

140. Other NRAs which had defined separate geographic markets, have, in line with the 2013 Commission Recommendation, modelled one efficient NGA network. For instance, the Hungarian NRA also identified separate geographic markets with respect to wholesale central access provided at a fixed location: "[…] [the Hungarian NRA]*identified three separate relevant geographic markets, each corresponding to the respective operating areas of the local incumbent network operators (Magyar Telekom, Invitel, and UPC)"*[100]. However, in its final decision, it relied on a single NGA network:

> *As stated in paragraph 37 of Recommendation 2013/466 / EU, "In light of the principle of technological neutrality NRAs should consider various approaches to modelling the hypothetical efficient NGA network depending on the access technology and network topology that best fit national circumstances." As a result, national regulatory authorities need to have some degree of flexibility to develop a state-of-the-art, efficient NGA network model, taking into account the principle of technological neutrality and differing*

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98 Paras. 89-92: "*De dekkingszones van de kabeloperatoren kunnen zich onderscheiden door geografische verschillen (oppervlakte van het grondgebied) en demografische verschillen (verschillen in bevolkingsdichtheid). In een kostenmodel worden deze verschillen weerspiegeld door geotype. Elke "kabelzone" vertegenwoordigt verschillende proporties van stedelijke, voorstedelijke en landelijke geotypes. […] Er bestaat geen nationale kabeloperator in België. Geen enkele bestaande Belgische kabeloperator zou de schaalvoordelen van een dergelijke operator kunnen evenaren en er is geen enkele Belgische kabeloperator actief in een dekkingszone die de kenmerken (aandeel verschillende geotypes) van het Belgische grondgebied in zijn geheel zou hebben. Op basis van deze vaststellingen, meent het BIPT dat het niet gepast is om een efficiënte operator van nationale omvang te definiëren. Het BIPT acht het gepast om in de tarieven van elke kabeloperator de kenmerken eigen aan zijn dekkingszone te weerspiegelen*."

99 See 2013 Commission Recommendation, rec. 39: *"Modelling **a single efficient NGA network** for copper and NGA access products neutralises the inflationary volume effect that arises when modelling lines."* (emphasis added); 2013 Commission Recommendation, rec. 30: *"The BU LRIC + methodology calculates the current costs on a forward-looking basis (i.e. based on up-to-date technologies, expected demand, etc.) that **an efficient network operator** would incur to build a modern network today, one able to provide all required services. Therefore, BU LRIC + provides correct and efficient signals for entry."* (emphasis added); 2013 Commission Recommendation, point 31: *"NRAs should adopt a BU LRIC + costing methodology that estimates the current cost that **a hypothetical efficient operator** would incur to build a modern efficient network, which is an NGA network."* (emphasis added).

100 Case HU/2017/2022: Wholesale central access provided at a fixed location for mass-market products in Hungary, p. 2.

national circumstances. The NGA network can therefore be based on any of the various access technologies and network topologies available to the network builders. Based on the above, I examined the technological features of the Access providers' [Magyar Telekom, Invitel, and UPC] network, and based on this, I decided to consider xDSL, GPON, DOCSIS and FTTH P2P technologies together in the development of the NGA network to be modeled. ***The modeled network is a future hypothetical efficient NGA network, which is based on the current coverage of the access network of the largest service providers in the domestic market (Access providers and DIGI), taking into account existing technologies and topologies****.*[101] (emphasis added)

141. Similarly, § 2593 and Footnote 1214 of the Framework Decision confirm to have a single cost model and refer to a single tariff.[102] Here again it should be reminded that the CRC concluded in its Framework Decision that even on a broader 3b market, the exact same remedies would be appropriate. By proposing different models, the Belgian NRA is departing from this logic.

142. The precedent regulations involving multiple operators (particularly MTRs and FTRs but also wholesale access remedies imposed in the context of market 15) confirm that NRAs have taken a single efficient operator in order to avoid asymmetric tariffs.[103]

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101 NMHH, Piacmeghatározás, a jelentős piaci erővel rendelkező szolgáltatók azonosítása és kötelezettségek előírása (3(b)/2014. piac)PC/17920-64/2017. számú határozat, 14 December 2017, available at http://nmhh.hu/cikk/191574/PC17920642017_szamu_hatarozat, p. 240-241: "*A 2013/466/EU Ajánlás 37. pontjában foglaltak szerint "A technológiasemlegesség elvére figyelemmel a nemzeti szabályozó hatóságoknak több különböző megközelítést kell mérlegelniük a feltételezett, hatékony NGA-hálózat modellezésére vonatkozóan attól függően, hogy a nemzeti sajátosságoknak mely hozzáférési technológia és hálózati topológia felel meg a leginkább. Fentiekből eredően a korszerű, hatékony NGA-hálózat modelljének kialakításához a nemzeti szabályozó hatóságok számára bizonyos mértékű rugalmasságot kell biztosítani a technológiasemlegesség elvére és az eltérő nemzeti körülményekre figyelemmel. Az NGA hálózat ennél fogva a hálózatot kiépítő üzemeltetők számára elérhető különféle hozzáférési technológiák és hálózati topológiák bármelyikén alapulhat. Fentiek alapján megvizsgáltam a Kötelezett Szolgáltatók hálózatának technológiai sajátosságait, ennek alapján pedig a modellezendő NGA-hálózat kialakítása során az xDSL, a GPON, a DOCSIS és az FTTH P2P technológiák együttes figyelembe vétele mellett döntöttem. A modellezett hálózat egy jövőbeni feltételezett – hipotetikus hatékony – NGA-hálózat, amely felépítésének kiinduló pontja a hazai piacon legjelentősebb méretű szolgáltatók (a Kötelezett Szolgáltatók és a DIGI) hozzáférési hálózatának jelenlegi lefedettsége, figyelembe véve a meglévő technológiákat és topológiákat."*

102 Framework Decision, para. 2593: *"Gelet hierop, is het BIPT van oordeel dat voor de combinatie van internet en televisie, de handhaving van de huidige tarieven voor alle gereguleerde operatoren samen niet als billijk mag worden beschouwd wat Telenet betreft, waarvan het groothandelstarief er sterk bovenuit steekt. Daarentegen zouden de tarieven die Brutélé toepast, op het eerste gezicht, in afwachting van de ontwikkeling van een kostenmodel, als billijk beschouwd kunnen worden omdat ze niet al te beduidend afwijken van het beste vergelijkingspunt dat beschikbaar is. Bovendien zou het toepassen van de tarieven van Brutélé op de footprint van Telenet en van Nethys de huidige verschillen tussen de wholesaleprijzen van de verschillende Belgische kabeloperatoren doen verdwijnen1214. Meer bepaald acht het BIPT het redelijk om in afwachting van de ontwikkeling van een kostenmodel voor alle gereguleerde operatoren de prijzen te bepalen op het niveau van de huidige Brutélé-groothandelstarieven die van toepassing zijn in de Brutélé-footprint."*; Framework Decision, footnote 1214: *"Dergelijke verschillen kunnen logisch lijken in het kader van een retail-minusmethode (die vertrekt vanuit het retailtarief van elke operator) maar zijn dat niet noodzakelijk in een stelsel van billijke prijzen die geacht worden nog altijd een link te hebben met de kosten van een efficiënte operator.*"

103 See e.g., the latest MTR regulation set forth in Besluit van de Raad van het BIPT van 26 mei 2017 betreffende de analyse van markt 2 gespreksafgifte op afzonderlijke netwerken:

Reference is also made to paras. 17 above regarding the need to ensure consistency and non-discrimination in the imposition of remedies. The previous tariff regulations only allowed for asymmetric tariffs in order to take account of exclusive or special rights which offered the former monopoly operator certain advantages, which (regulated) new entrants would not benefit from.

143. There are no such considerations in this instance given that the three cable operators could enter the market at the same time without having benefited from a legal monopoly position. Telenet even had to acquire the portion of the cable network from their former owners (the intercommunales and Numericable). The higher broadband penetration in Telenet's coverage area is the result of Telenet's faster development and successful commercial strategy. It is not an inherited position resulting from the benefit of exclusive special rigths. By retaining different models instead of taking an "efficient national cable operator", Telenet is being sanctioned for having made more and faster network investments compared to the Walloon cable operators.

144. The impact of the discriminatory treatment is even more significant as a result of the proposed asset valuation and the RAB which largely ignores the value of Telenet's HFC network and the investments it made for its network deployment and upgrade and which are much more significant than the investments made by Nethys or Brutélé (as described further below). In most of the less densely populated areas, Nethys does not even have a bi-directional or HFC network and has not made the investments to upgrade it. The relevance of the alleged reduced density of Nethys and Brutélé networks is also further reduced given that both cable networks have an extensive cooperation structure and are, to Telenet's knowledge, sharing costs.

145. In addition, the model's assumptions with respect to the take-up are incorrect and here again discriminatory for Telenet. The Belgian NRA determined the same take-up for each operator (for all retail and wholesale customers). This modelized take-up estimate is based on the historical data of all cable operators (i.e. the take-ups used in the cost model already submitted for consultation). The Belgian NRA determined two take-ups: one for TV (downward) and one for broadband (upwards). This evolutionary curve is assumed to be identical for each operator. The model retains a single take-up for each operator whereby the downward trend for TV will be compensated by the upward trend for broadband.

146. Telenet's own forecast shows a very different development in the years to come. Telenet's Plan of Report (**PoR**) which informs Telenet's strategic decisions and

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"*443. In 2008 heeft de consultant Analysys Mason een "bottom-up" kostenmodel ontwikkeld voor mobiele gespreksafgifte op basis waarvan de tariefregulering voor de wholesalediensten voor mobiele gespreksafgifte in België mogelijk werd. Het model gebruikt informatie over de vraag en netwerkparameters die op voorhand werden verstrekt door de drie mobiele operatoren in België. Dit model omvatte een top-down afstemming op de boekhoudkundige gegevens die de operatoren hebben verstrekt zodat de resultaten zo goed als mogelijk de vastgestelde niveaus van directe en indirecte uitgaven bij weerspiegelen de operatoren.*

447. Het model berekent de kosten van een hypothetische efficiënte operator (HEO) op de Belgische markt. Er werden bepaalde vereenvoudigingen aangebracht in het model sinds de laatste versie :

• er is niet langer een afstemming op de top-downgegevens van de operatoren in het model;

• het model maakt het niet langer mogelijk om de mobiele gespreksafgiftekosten van de bestaande operatoren te berekenen. Er wordt slechts een hypothetische efficiënte operator gemodelleerd aangezien het besluit van het BIPT van 29 juni 2010165 een "glide path" heeft opgelegd waarvan het uiteindelijke niveau de kosten van een hypothetische efficiënte operator zijn en dat niveau werd behaald."

provides an estimate of market developments in the three years to come shows that, during the period 2018-2022, [redacted]

[redacted] This graph demonstrates that, contrary to the Belgian NRA's assumption, there is no upward trend for Telenet's broadband customers. The decrease in TV customers will not be counterbalanced by an increasing trend for broadband.

148. Finally, retaining three models in the Draft Decision is also inconsistent with the Framework Decision, as it cannot be applied in combination with the price squeeze remedy. The price squeeze tests will be carried out on a range of top products ("flagships"), supplemented, if necessary, by a test at the level of the individual tariff plans.

149. If the Draft Decision's model for three different efficient operators is maintained, the application of the above-mentioned price squeeze tests will place the SMP operator in an impossible position of legal uncertainty. The price squeeze test entails a comparison between prices of the upstream intermediate transactions (wholesale products) and the prices of services (wholesale or retail) in the downstream markets in order to determine whether the difference is sufficient to cover the incremental costs necessary to commercialize the product downstream. The outcome of this test is, however, jeopardized by the fact that Orange Belgium applies the same retail tariffs across the three regions (Brussels, Flanders and Wallonia), whereas the wholesale access tariffs are set by cable operator (i.e. region covered by each cable operator). The determination as to whether the difference between Orange Belgium Belgium the SMP operator's retail and wholesale prices is sufficient for to earn a reasonable profit will necessarily be dependent on the geographic mix of clients (and associated wholesale access costs for Orange Belgium) whereas Telenet only offers access in Flanders and only competes in Flanders. This results in major uncertainty for SMP operators in

setting retail prices and shows the inconsistency of the model proposed with the Framework Decision.[104]

150. Under the proposed cost model, any national access seeker faces three input prices: one for each of Brutélé, Telenet and Nethys. We have calculated these monthly wholesale costs for 2019 for a 100Mbps download speed and 1Mbps throughput as:

Brutélé: €14.41

Nethys: €15.94

Telenet: €12.61

151. The retail prices of Voo and Telenet are quite similar at around €40.00 per month (net of VAT and allowing for introductory discounts)[105]. The actual price for Telenet is €39.65. This implies that Telenet's retail costs are €27.04 per month.[106]

152. The largest access seeker, Orange Belgium, sets a national retail price, but faces different wholesale costs. For Orange Belgium to be able to match the Telenet retail price on a national level, and assuming Orange Belgium has the same costs to convert the wholesale input to the retail product, it would face a loss in Brutélé and Nethys areas of €1.80 and €3.33 per month per line to match their retail prices.

153. This effect is set out in the table below.

Operator	Retail Price (Telenet)	Wholesale Price	Margin	Orange Belgium conversion cost per line	Orange Belgium loss per line
Brutélé	39.65	14.41	25.24	27.04	1.80

104 A margin squeeze arises when a vertically integrated firm that is dominant in an upstream market supplies both its own and its rivals' retail businesses with an essential input that represents a significant input cost for downstream firms. The vertically integrated firm may exert a margin squeeze by either (i) raising the price of the input whilst maintaining the downstream price or (ii) lowering the downstream price whilst maintaining the price of the input. The vertically integrated firm can choose where to take its profits. By setting a high upstream price and maintaining its price in the downstream market, it can reduce the gross margin available to competitors whilst it is still able to make an overall profit.

Formally, a margin squeeze occurs if: $P^d - (W + M^d) < 0$

Where P^d = dominant firm's price, W = wholesale price of inputs, and M^D = dominant firm's efficient cost of converting the wholesale input into a retail product. In calculating whether a margin squeeze is occurring, it is presumed that the competitor will be equally efficient[104]: i.e. it has the same downstream costs to convert the wholesale input to a retail product as the vertically integrated firm. Thus $M^e = M^d$, where M^e is the competitor's downstream costs.Normally, there is a single vertically integrated firm supplying the wholesale input to itself and others and so the competitors only have one input cost. However, the situation in Belgium is different in that there are three cable operators in separate parts of the country. Therefore, any national access seeker must buy from all three operators to serve the entire market.

105 We have calculated the average monthly price for a 24 month period allowing for an introductory discount as offered by both Voo and Telenet.

106 Example taken for illustration purposes only.

Nethys	39.65	15.94	23.71	27.04	3.33
Telenet	39.65	12.61	27.04	27.04	0

154. In this scenario, Orange Belgium would be making a loss on each customer it sold to in Nethys and Brutélé areas. It could seek to prevent this by raising its retail price by €3.33 across the country, but this would make it uncompetitive with both Voo and Telenet.

155. This prospective margin squeeze occurs as a result of the differential wholesale pricing resulting from the Belgian NRA model and not a result of any action of the operators concerned.[107]

(D) Partial allocation of wholesale IT costs to SMP operator imposes a sale at a loss

156. General and administrative expenses ("**G&A**") and IT expenses are allocated to all services by means of a separate margin ('mark-up') on top of the costs of the services. the Belgian NRA determined the mark-ups on the basis of the information provided by the respective operators during the development phase. The cost of IT platforms for providing retail services (such as retail invoicing and customer management systems) are excluded from the calculation. Consequently, only the part of the IT expenses that could be attributed to network activities were included in the IT markup. As regards the specific IT expenses in relation to wholesale access products, however, the model only partially includes these in the mark-up instead of allocating them in full. These expenses are partially borne by the SMP operators.[108]

157. As set out already in Section 1(B) above, the principle of cost recovery is well enshrined in the EU and Belgian case law and the Draft Decision fails to provide adequate justification for a departure from the principle of cost recovery. The Belgian NRA appears to assume that full cost recovery would be detrimental to competition and would not lead to cost minimization. The Belgian NRA seems to find support for this approach in the Framework Decision, Article 13(2) of the Access Directive and IRG guidelines.

158. However, the Belgian NRA overlooks its primary obligation under Article 13(1) of the Access Directive "*[t]o encourage investments by the operator, including in next generation networks"* by taking into account *"the investment made by the operator, and allow him a reasonable rate of return on adequate capital employed, taking into account any risks specific to a particular new investment network project.*" By making

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107 The fact that there is currently already a wholesale price differentiation does not affect this analysis given that the current wholesale price methodology is based on a retail minus approach which as such reduces the risk for price squeeze and therefore reduces the legal uncertainty which comes with the differentiated pricing.

108 The Belgian NRA justifies this as follows in para. 122 of the Draft Decision : « "*De gereguleerde operatoren daarentegen doen deelnemen aan de terugwinning van deze kosten maakt het mogelijk om de obstakels weg te nemen en dus de concurrentie te bevorderen. Dergelijke obstakels wegnemen, rekening houdend met de schaalvoordelen van de SMP-operatoren, is overigens een van de elementen van de CRC-beslissing die worden gebruikt om de verplichting tot prijscontrole te rechtvaardigen. Bovendien vertegenwoordigt dit een bijkomend voordeel in termen van concurrentie: de gereguleerde operator wordt aldus aangezet om zich op een daadwerkelijk efficiënte manier te gedragen, terwijl hij geen dergelijke motivatie zou hebben indien hij de totaliteit van deze kosten zou kunnen verhalen op zijn concurrenten. Enkel rekening houden met de kosten van een efficiënte operator is ook gerechtvaardigd door de CRC-beslissing van 29 juni 2018. Het principe van het minimaliseren van de kosten pleit er dus voor dat de gereguleerde operator een deel van de IT-kosten draagt die specifiek zijn voor de wholesaleproducten.*".

the SMP operator share in these costs which should normally be borne exclusively by the beneficiary of these IT services, the Belgian NRA grants the other operators an unjustified competitive advantage.

159. The Belgian NRA assumes, without any adequate substantiation, that, in case of full cost recovery, competition would be weakened and the SMP would not have enough incentive to cut these costs. However, in the applicable cost model, the SMP operator is only allowed to recover the efficiently incurred costs of the services that it provides, including IT services for wholesale access products. The Belgian NRA also does not pretend that the specific wholesale costs which the cable operators have to bear would be inefficient.

160. The need to protect the competitive position of the access beneficiary is equally a justification which does not support the obligation for the cable operator to offer the wholesale access service at a loss. The Framework Decision has imposed other remedies including in particular the remedy of non-discrimination and replicability which is aimed at ensuring a sufficient margin between the wholesale access prices and the downstream prices applied by the SMP operators.

161. The references to the Framework Decision cannot justify this cost allocation in the Draft Decision either. In paras. 2563 and 3122 of the Framework Decision to which the Belgian NRA refers, the CRC merely pointed out in general terms that a reasonable price remedy will allow the other operators to benefit from the economies of scale realized by the SMP operator. The CRC did not establish that the SMP operators are able to easily recover these IT expenses due to their economies of scale and that, consequently, these costs are to be partially borne by them.

162. Moreover, this approach is contrary to the LRAIC+ methodology imposed by the 2013 Commission Recommendation which foresees that the SMP operator should be able to recover all "incremental costs" i.e., costs that directly associated with the production of a business increment. Point 6 (i) of the 2013 Commission Recommendation defines incremental costs as *"costs that are directly associated with the production of a business increment, i.e. the additional cost of supplying a service over and above the situation where the service was not provided, assuming all other production activities remain unchanged."* These specific IT costs can be directly associated with the production of a business increment and the operator should therefore be entitled to fully recover them from the wholesale access seekers.

(E) The insufficiency of the risk premium for very high speed services

163. In order to account for uncertainties in relation to the demand for high speeds, the Belgian NRA calculated an additional margin on top of the outcome of the cost model for high speed profiles. The Draft Decision limits the application of this margin to broadband profiles above 200 Mbps which significantly limits the extra margin which the SMP operator can benefit from for investing in NGA and promote higher speeds.

164. The 5-10% margin which the Belgian NRA is considering in the cost model is also far below the levels which should be granted to incentivize the investments in NGA. Further, the model's inability to flex with demand, i.e. to increase capacity to serve additional demand, means it is so unstable that the 5-10% margin simply does not give enough economic headroom for operators to take the risk of investing in higher speeds access products.

165. The Commission acknowledged that "*investment risk should be rewarded by means of a risk premium incorporated in the regulated costs of capital* […]*"* [109]. The Commission recognized that NGA investments are risky and the 2013 Commission Recommendation mandates NRAs to take all risk-associated factors into account when setting access pricing:

> *"Investments in NGA networks are risky, because investing undertakings cannot be sure that today's capital outlays will be recouped over time, and, even if re-coupment occurs, that returns on these capital outlays will be superior to the returns of cash, low-risk bonds or alternative investment projects. The Recommendation specifies that NRAs should analyse and weigh up all risk factors when determining regulated access prices to NGA networks. Such prices ought to include a reasonable rate of return, as regulators will model an investing undertaking's business case, and assess the weighted average cost of capital (WACC)* ***including a risk premium to reward the investor for taking the risk associated with making the investment"***. [110] (emphasis added; footnotes omitted)

166. Granting an additional margin only for certain profiles, would give access beneficiaries the incentive not to promote these profiles, to prevent having to pay an additional margin on top of access prices. This is also why the 2010 Commission Recommendation does not provide for a risk premium only for high-speed broadband profiles, but instead considers that investment in the overall network must be recovered. [111]

(1) The cut-off at 200 Mbps is too restrictive

167. The Grote Netwerf, the investment project carried out by Telenet between 2014 and 2019 to upgrade its cable network to higher speeds, is considered a point of reference in the Draft Decision allowing for speeds in excess of 200 Mbps. Prior to this project, speeds of up to 200 Mbps were already possible without the investments made for the *Grote Netwerf.* Investment made prior to the Grote Netwerk should therefore, according to the Draft Decision, not be rewarded with an extra margin.

168. This justification in the Draft Decision ignores the fact that the reason why users were able to get broadband speeds of 200 Mbps is that Telenet had already made significant investments on its network prior the Grote Netwerf plan. During the period 2006-2013, Telenet invested a total amount of EUR 671 million in its network allowing it to reach high broadband capacities by upgrading the cable with increased fibre presence, node splitting and other network improvements which supported higher bandwidth and usage.

169. Belgium is one of the leading countries in broadband penetration and high speed. This led the Commission to conclude in 2014 that *"Belgium is among the EU Member States*

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109 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 28.

110 Commission Staff Working Document, Accompanying document to the Draft Commission Recommendation on regulated access to next Generation Access Networks (NGA), C(2010) 6223. SEC(2010) 1037, p. 28-29.

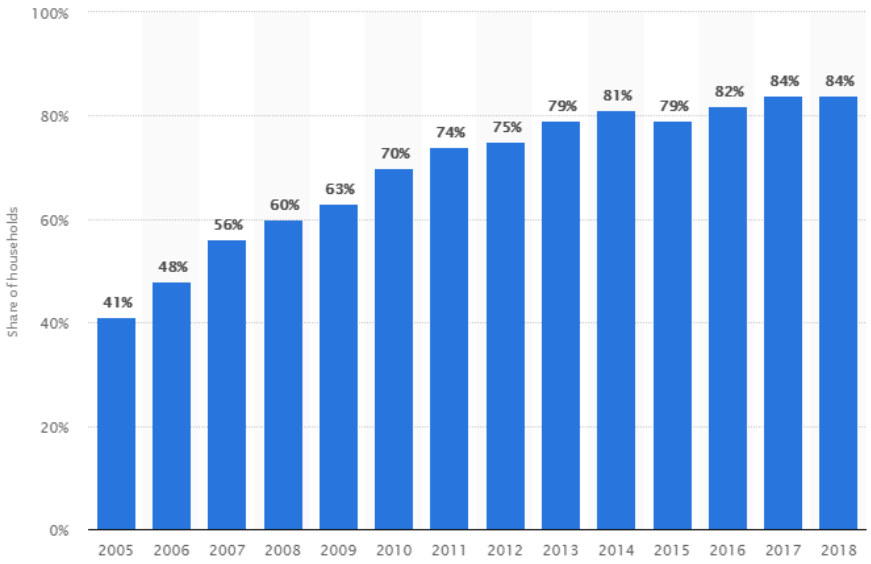
111 2010 Commission Recommendation, Annex 1, Section 6.

with well above average fixed high-speed broadband coverage and penetration rates, thanks in part to a well-developed cable network."[112]

Broadband Indicators (January 2014)[1]					
	Speed	**Belgium**		**EU Average**	
		%	Growth[2]	%	Growth
Fixed broadband coverage[3]	From 144 Kbps	99,9	1	97,1	2
	NGA[4]	98,3	1	61,8	15
Fixed broadband penetration[5]	From 144 Kbps	34,3	4	29,9	4
	From 30 Mbps	22,7	18	6,3	47
	From 100 Mbps	4,2	2	1,6	78
Mobile broadband coverage	Basic (HSPA)	98,8	0	97,1	1
	LTE	45,6	461	58,9	125
Mobile broadband penetration		45,7	14	61,1	5

Source: European Commission

170. In Belgium, the share of households with broadband internet access has indeed significantly increased. Broadband penetration of households in Belgium was 81% at the end of 2014, having risen from 41% in 2005.[113]



Source: Statista

171. Again, Telenet is being sanctioned by not getting an extra margin which other operators are getting simply because it has been at the forefront on the development of NGA.

172. The investments made by Telenet during the period 2006-2013 have enabled Belgium to achieve the Commission targets set out in Section 2 above well ahead of schedule. As a result, within the EU, Belgium is one of the leaders in terms of NGA coverage

112 EC DIGITAL AGENDA TARGETS AND ECONOMIC INDICATORS, available at http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=6445

113 Statista, available at https://www.statista.com/statistics/702491/broadband-internet-household-penetration-belgium/

which has predominantly been due to investments in upgrades and development of the cable network. There is no justification to punish Telenet for the fact that its investments anticipated the Commission's broadband speed targets and allowed for achievement of these targets ahead of the target dates.

(2) 5-10% is too restrictive

173. As regards the level of this additional margin, the Belgian NRA found that the insufficient price competition necessitates wholesale prices which are primarily cost-related. According to the Belgian NRA, the additional margin must necessarily be limited and the Belgian NRA proposes an additional margin of 5% or 10% according to the category of the profiles.

174. Again, the Belgian NRA fails to take into account the need to ensure incentives for NGA rollout which was discussed above in Sections 1(B), 2 and 3(B)(B)(a) underpins the 2013 Commission Recommendation. Furthermore, the Belgian NRA's approach is not line with the practice of other NRAs. In Germany, which the Belgian NRA is referring to in the Draft Decision, the NRA relied on the LRIAC+ cost model based on the costs of efficient service provision with a mark-up of 15%.[114] This 15% mark-up was granted in relation to Layer-2 Bit stream access which is of lower quality than 200 Mbps. While the Belgian NRA asserted in the Draft Decision that the Commission requested the German NRA to lower the mark-up, the German NRA's decision was based on case law of the German courts. Pursuant to this case law, *"for markets with monopolistic structure German case law has accepted a minimum of 5-10% mark-up whilst in other markets, with stronger competitive tendencies but still no effective competition, a 20-25% markup had been accepted by German courts."*[115] In deciding to apply a 5-10% margin the Belgian NRA takes the most restrictive approach and fails to recognize that the Belgian market is in fact more competitive as a result of the existence of two ubiquitous networks which are competing with each other to offer very high broadband services and therefore justifies a higher risk premium.

175. According to Deloitte, the WACC in the BIPT/Axon 2018 model was 7.44%. Deloitte saw this as implying an NGA premium of 1.28%. The WACC in 2019 (Telenet) model is 7.12%, so this implies the NGA premium is down to 0.98%.

176. The margin is not only on the (very) low side but also discriminatory compared to the premium granted to Proximus for VDSL. In its decision of 3 August 2010, Proximus was granted an additional 15% on top of the WACC to encourage the roll-out of VDSL.[116]

[redacted]

114 Commission decision concerning Case DE/2016/1954: *Wholesale central access provided at a fixed location for mass-market products – Remedies (Pricing for Layer-2 Bitstream Access)*.

115 Commission decision concerning Case DE/2016/1954: *Wholesale central access provided at a fixed location for mass-market products – Remedies (Pricing for Layer-2 Bitstream Access)*, p. 10.

116 Besluit van de Raad van het BIPT van 3 augustus 2010 betreffende de rental fee voor WBA VDSL 2 "End User Line", § 43.

Conomics

ASSESSMENT OF THE BELGIAN HFC COST MODEL

FINAL

6 September 2019

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ASSESSMENT OF THE BELGIAN HFC COST MODEL

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1 INTRODUCTION

The Conference of Regulators of the Electronic Communications Sector (CRC) made a number of decisions on 29 June 2018 (with a corrigendum on 11 July 2018) regarding the analysis of the Belgian broadband and broadcasting markets. In these CRC decisions, the cable operators in Belgium (Brutélé, Nethys and Telenet) were identified as operators with a dominant position in the broadcasting and broadband access markets. In the decisions, CRC obliges operators to charge fair prices for their services regarding wholesale access to broadcasting and broadband services.

On 13 December 2018, BIPT started a Public Consultation regarding its bottom-up long-run incremental cost (BULRIC) models for the access to the cable operators' networks and to Proximus' fibre-to-the-home (FTTH) network. The consultation aims to provide transparency to the stakeholders on the cost modelling process and to gather any useful remarks aimed at adapting these cost models. Telenet provided its reaction on 15 February 2019 to the consultation process ending on 16 February 2019.

On 5 July 2019, the new monthly wholesale charges for access to the cable networks were presented by BIPT for public consultation. The consultation is scheduled to end on 7 September 2019 and stakeholders are expected to provide their reaction by 6 September 2019.

Telenet believes that the current BIPT cost model does not consider all the relevant cost elements, does not allocate the total costs properly, and therefore, BIPT is proposing new wholesale tariffs which are not based on proper assumptions resulting in disincentives to Telenet for its NGA investments. Moreover, the documentation of the significant changes to the cost model required to implement the RAB methodology are inadequate, creating a lack of transparency that makes it impossible to conduct the thorough evaluation of critical cost model assumptions necessary for this public consultation.

Telenet has the following concerns about the model and its outputs:

1. The BIPT/Axon BULRIC model produces estimates of efficiently incurred costs that are too low, by excluding and underestimating relevant costs.
2. The allocation of traffic sensitive costs within the model is creating a low 'tariff gradient', with high-speed broadband services attracting a relatively low proportion of traffic-sensitive costs.
3. As a result of employing the Regulatory Access Base (RAB) methodology and performing geographic de-averaging, the new cost estimates and the proposed tariffs are significantly lower than they were before when the BIPT/Axon model was presented for public Consultation in December 2018.
4. The current proposed tariffs provide a disincentive to Telenet for its NGA investments.

Telenet has asked e-Conomics to conduct an independent assessment of the proposed wholesale tariffs, review the existing BIPT cost model, and assist Telenet in creating its response to the BIPT Consultation on the new monthly wholesale charges for cable networks access by 6 September 2019.

We have adopted the following approach to the assignment:

- **Analysis of the regulatory context** to understand the purpose of developing a bottom-up long run incremental cost (BULRIC) model of the sort prepared by BIPT/Axon and the

practice proposed by the European Commission and implemented by other European national regulatory authorities.

- **Model assessment** to gain a clear understanding of how the BIPT/Axon model was used to come up with the proposed tariffs and investigate the relevance and appropriateness of the model inputs.
- **Business case analysis** to assess how the currently proposed tariffs provide serious disincentives to Telenet and other operators to invest in next-generation network assets.

2 EXECUTIVE SUMMARY

2.1 ANALYSIS OF THE REGULATORY CONTEXT

The BIPT/Axon cost model has been substantially changed between 2018 and 2019 ostensibly so that it could better reflect the principles embedded in European legislation. We have examined that legislation, specifically the 2013 EC Recommendation on costing methodologies to be used in order to promote competition and enhance the broadband investment environment, and the new European Electronic Communications Code (EECC) that was adopted in December 2018.

Our analysis has revealed that the construction of the BIPT/Axon model is not compliant with the EC guidelines. In particular, the Regulatory Asset Base from which service costs are calculated, does not follow the prescribed approach to the revaluation of civil engineering assets. There are two related problems:

- The revaluation includes cables and trenches whereas, according to the EC recommendations, it should be limited to non-replicable and re-useable civil engineering assets. In the case of Telenet, these assets are just manholes and poles. Coaxial cables, and the trenches that were dug in order to install those cables, could be replicated (at least beyond the first concentration/distribution point) most likely with fibre, but are not reusable for services other than those provided by Telenet.
- The asset lifetimes used in the RAB are inappropriate and are inconsistently applied within the model. The RAB lifetime is stated to be 35 years, but this is consistent neither with the EC's recommendation of 40 years for non-replicable and re-useable civil engineering assets, nor with Telenet's actual value of 20 years for the combined access network investment (cable + trench + manholes + poles).

2.2 REVIEW OF THE BIPT/AXON COST MODEL

Our team has reviewed the BIPT/Axon cost model in order to identify the main drivers of the costs as well as the allocation principles deployed to allocate costs to services. In addition, we have performed a sensitivity analysis to assess how changing some of the input assumptions would change the proposed tariffs. We have reviewed the model inputs in co-operation with Telenet's representatives to identify potential areas where model inputs may vary from the assumptions presented, and have assessed the impact of using alternative, defensible data inputs.

In assessing the BIPT/Axon cost model, the project team's investigation has focussed on three areas:

1. **The relevance and appropriateness of the chosen model inputs**; in particular, we have analysed the impact on the model of using a Regulatory Access Base (RAB) for the valuation of passive infrastructure components of the network. We have investigated which common network cost elements were removed from the calculation (as compared to the version of the Axon/BIPT model that was subject of the consultation in 2018) and we have found technical/economic arguments (within the context of the RAB) on why some of these cost elements need to be put back into the cost assessment.
2. The **appropriateness of the allocation of the total costs into common costs and incremental costs**; in particular, we have reviewed the cost elements that are currently

allocated to the access service or to traffic, be they common costs or incremental costs, given the architectural differences between cable networks. We have also analysed the impact of other assumptions made on Telenet's network topology, network capacity and dimensioning, active infrastructure components, network element costs, etc.

3. **The appropriateness of the cost allocation due to geographic de-averaging**; there are now three models, broadly speaking for the Wallonia, Flanders and Brussels areas of the country. The outputs of each of these models vary and we have investigated whether Telenet has been disadvantaged by the geographic de-averaging exercise from the previous situation where there was a single one-size-fits-all model.

Some of the changes made in the cost model can be considered an improvement, but still leave room for further improvement; notably the rebalancing of costs between access and broadband services. Other changes are completely wrong, in particular the modified approach to revaluation of passive infrastructure within the Regulated Asset Base. It seems that the aim the latter was to implement EC rules which, amongst others, have the objective of giving appropriate 'build-or-buy' signals. However, the 2019 BIPT/Axon model does not accomplish that goal because the EC rules are misinterpreted. In particular, there is a fundamental problem in the way that the model treats the costs of coaxial cable and the trenching costs, the latter being part of the installation costs associated with that directly buried cable. The EC stipulates that such assets should be valued on the basis of current replacement costs, whereas BIPT/Axon has attempted to revalue these assets in the manner prescribed only for re-usable, non-replicable civil engineering assets. Consequently, the Axon/BIPT model results in access prices that do not reflect the costs for entrants of building their own access network. This not only distorts the entrants "build-or-buy decision", but also distorts the incentives for both Proximus and the cable operators to invest in network upgrades.

There is, in particular, a fundamental problem in the way that the model treats the costs of coaxial cable and the trenching costs that are part of the installation costs associated with that directly-buried cable. The EC stipulates that such assets should be valued on the basis of current replacement costs, whereas BIPT/Axon has attempted to revalue these assets in the manner prescribed only for re-usable, non-replicable civil engineering assets.

Some significant re-modelling work is required to correct these errors. The authors of the model are best placed to make the necessary structural and computational changes whilst maintaining the integrity of the model. However, by adjusting key input parameters including a re-working of the RAB revaluation, we have been able to derive an approximation for the likely outcomes. Our analysis suggests that the proposed outcomes for access costs are currently understated by a significant margin. [redacted]

[redacted]

[1] BIPT/Axon cost model, worksheet 12B "OUT SERV LRIC+ UNIT COST", Cell M1013
[2] BIPT/Axon cost model, worksheet 12B "OUT SERV LRIC+ UNIT COST", Cell M1035

2.3 ANALYSIS OF THE INCENTIVES TO INVEST

The tariffs proposed by BIPT in its draft Decision would have a negative impact on the incentives to invest in NGA networks for all operators (cable operators, Proximus and access seekers):

1. First, the suggested approach results in excessively low access prices that do not reflect the costs for entrants of building their own access networks, thereby distorting the entrants "build-or-buy decision" and taking away its incentives to climb the ladder of investment by investing in its own FttH access network.
2. Second, as a result of the previous, both Proximus and the cable operators face less competitive incentives to invest in upgrading their own access networks. Furthermore, while entrants enjoy excessively low access prices on cable networks, they will be less inclined to switch to wholesale access offered by Proximus if Proximus were to invest in FttH roll-out. As consequence, Proximus will have lower potential wholesale revenues which further reduces its incentives to invest in FttH. This in turn further reduces the incentives of cable operators to invest in network upgrades
3. Third, the proposed tariff structure features an increasing disparity between cost and price for high bandwidth services which further negates incentives to invest in broadband enhancements. For example, Orange would be able to purchase wholesale broadband access at 1 Gbps for a lower price than it costs Telenet to provide 500 Mbps access. This not only reduces Telenet's incentives to invest, but it places Telenet at a competitive disadvantage vis-à-vis Orange and results in perverse market outcomes.
4. Finally, BIPT undermines regulatory certainty in Belgium. The proposed costing methodology breaks with past regulatory practices in Belgium and is non-compliant with the 2013 EC Recommendation on costing methodologies. The moment Telenet is about to conclude a 5-year investment cycle (i.e. the upgrade to DOCSIS 3.1, a process which was initiated in 2014), BIPT changes the rules leading to a dramatic decrease of Telenet's wholesale revenues. By proposing such a dramatic change at the end of such an important investment cycle, the BIPT undermines regulatory certainty in Belgium; not only for Telenet, but for all parties that are willing to invest in the Belgian telecom market (now and in the future).

All in all, there is real risk that the BIPT tariff proposals will stymie most, if not all future, investment in high speed broadband networks. This will impact all network operators in Belgium, but it seems that Telenet will be affected the most.

2.4 CONCLUSIONS

There is a critical flaw in the calculation of the Regulatory Asset Base within the 2019 BIPT/Axon cost model. The model does not properly implement the EC Recommendations for costing methodologies that promote competition and enhance the broadband investment environment. Together with some minor Telenet-specific issues related to model inputs, this results in a gross under-estimate of the real costs of access and a smaller, but still material, under-estimate of the costs of broadband services.

We are also very concerned about the use of economic depreciation within the model. This, together with a static network design assumption, appears to be the reason why the model outputs

are perversely affected by changes in the demand forecasts. We would strongly recommend that a tilted annuity depreciation methodology is used instead, as is the normal practice across the EU.

It is vital that these errors are corrected, and that the BIPT broadband tariff proposals are amended to reflect the actual costs of Telenet. Only this way can Telenet justify on-going network investments; only by doing this can the impetus towards very high capacity networks in Belgium be maintained.

3 REGULATORY CONTEXT

3.1 THE EUROPEAN COMMISSION'S RECOMMENDATION ON COSTING METHODOLOGIES

On 11 September 2013, the European Commission published its Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (C(2013) 5761)[3]. One of the core objectives of the Digital Agenda for Europe is the deployment of next generation access (NGA) networks, and the Recommendation is part of the European Commission's efforts to create common approaches, together with National Regulatory Authorities (NRAs) and BEREC, for the consistent application of the regulatory framework defined by Directive 2002/21EC (the Regulatory Framework).

The Recommendation aims to promote efficient investment and innovation in new and enhanced infrastructures whilst recognising the need to maintain effective competition, which is an important long-term investment incentive. The Recommendation seeks to:

- ensure a level playing field through the application of stricter non-discrimination rules,
- establish predictable and stable regulated wholesale copper access prices, as well as
- increase certainty on the circumstances in which wholesale access prices for NGA services should not be regulated.

Increasing legal and regulatory predictability in this manner should further help to trigger the investment needed in the near to medium-term future.

The Commission has consistently urged NRAs under its powers pursuant to Article 7 of Directive 2002/21/EC to:

- use appropriate cost-accounting methods and ensure consistent pricing of access products along the same value chain to safeguard the ladder of investment principle,
- apply the principles of the relevant cost model consistently to all relevant input data and
- recognise the importance of using the costs of a modern, efficient network to set access prices.

The EC calls for a costing methodology that leads to access prices replicating as much as possible those expected in an effectively competitive market and is appropriate to meet the objectives of the Regulatory Framework. Such a costing methodology should be based on a modern, efficient network, reflecting the need for stable and predictable wholesale copper access prices over time, which avoids significant fluctuations and shocks. This will provide a clear framework for investment capable of generating cost-oriented wholesale copper access prices serving as an anchor for NGA services, and deal appropriately and consistently with the impact of declining volumes caused by the transition from copper to NGA networks. This approach would avoid an artificial increase in wholesale copper access prices which would otherwise be observed as a result of customers migrating to the NGA network of the SMP operator.

[3] See: http://ec.europa.eu/digital-agenda/en/news/commission-recommendation-consistent-non-discrimination-obligations-and-costing-methodologies

The European Commission considers the following principles key to a costing methodology:

- cost recovery: recovery of costs that are efficiently incurred plus an appropriate return on invested capital
- provision of the appropriate 'build-or-buy' signal
- ensuring transparency and consistency within the Union as well as ensuring that specific national circumstances are reflected under a consistent modelling approach.

The Commission considers that:

> *The bottom-up long-run incremental costs plus (BU LRIC+) costing methodology best meets these objectives for setting prices of the regulated wholesale access services. This methodology models the incremental capital (including sunk) and operating costs borne by a hypothetically efficient operator in providing all access services and adds a mark-up for strict recovery of common costs. Therefore, the BU LRIC+ methodology allows for recovery of the total efficiently incurred costs*[4].

The Commission reasons that, since a BU LRIC+ methodology calculates current costs on a forward-looking basis (and therefore recovers the costs that an efficient network operator would incur if he would build a modern network today), it provides the correct and efficient signals for entry. Since SMP operators would react to competition by upgrading their copper networks, and progressively replace them with NGA, the methodology should calculate the current costs of deploying a modern efficient NGA network.

The Commission is, *inter alia*, particularly focused on the valuation of assets. Current costs best reflect the replicability of assets. However, the Commission recognizes that civil engineering assets (ducts, trenches, poles) are unlikely to be replicated, but instead could be re-deployed within an NGA network. The Commission therefore recommends using a Regulatory Asset Base (RAB) corresponding to the reusable legacy civil engineering assets based on all four of the following principles:

1. be valued at current costs
2. take account of the assets' elapsed economic life (cost already recovered)
3. use an indexation method, relying on historical data on expenditure, accumulated depreciation and asset disposal (as available from the SMP operator's statutory and regulatory accounts) and on a publicly available price index (i.e. retail price index)
4. be locked-in and rolled forward.

According to the EC Recommendation, paragraph 36,

> *the indexation method would be applied to calculate the current costs for the RAB corresponding to the* ***reusable civil engineering assets*** *(emphasis added).*

In paragraph 34 it is also stated that:

> *Unlike assets such as the technical equipment and the transmission medium (for example fibre), civil engineering assets (for example ducts, trenches and poles) are assets that are unlikely to be replicated.*

It is apparent from this delineation that the transmission medium should not be revalued in the same way as passive infrastructure. Within the RAB adjusted valuations should only apply to non-

[4] EC Recommendation C(2013) 5761, paragraph 29.

replicable civil engineering assets such as ducts, trenches and poles, and only to the extent that can be re-used within the NGA.

The Commission expects RAB modelling in this way to:

- Send efficient market entry signals for build or buy decisions
- Avoid the risk of cost over-recovery for reusable legacy civil infrastructure
- Take into account that fully depreciated non-replicable reusable legacy civil engineering assets would be no longer part of the RAB – therefore no cost for the access seeker and the SMP operator alike.
- Ensure adequate remuneration for the SMP operator and provide regulatory certainty for both SMP operator and access seekers.

3.2 THE EUROPEAN ELECTRONIC COMMUNICATIONS CODE

The Directive establishing the European Electronic Communications Code (EECC) was adopted by the European Parliament on 11 December 2018[5]. The purpose of the EECC is to respond to the increasing convergence of telecommunications, media and information technology so that:

> *all electronic communications networks and services should be covered to the extent possible by a single European electronic communications code established by means of a single Directive*[6]

The focus of the EECC is the development of very high capacity networks (VHCNs) regardless of the delivery technology:

> *National regulatory authorities … shall … encourage and, where appropriate, ensure … adequate access and interconnection, and the interoperability of services, exercising their responsibility in a way that promotes efficiency, sustainable competition, the deployment of very high capacity networks, efficient investment and innovation, and gives the maximum benefit to end-users*[7].

The EC's preference is for the market-driven deployment of VHCNs so as to provide competitive outcomes for end users. Only in the event of high and non-transitory economic or physical barriers to replication should regulatory outcomes be imposed. And those outcomes should be imposed only on passive infrastructure unless or until such obligations have been demonstrated to be insufficient.

3.2.1 What is a competitive outcome for end-users?

To stimulate competitive investments in VHCNs, prices should reflect actual, efficient deployment costs so as to signal profit opportunities and, when investments are risky, prices should reflect a proper risk premium. At the same time, consumers should get 'value for money'. The latter does not necessarily mean that current retail prices should be low, but it means that the net present value (NPV) of the stream of current and future consumer surpluses should be maximised. Future consumer surpluses may be larger because of innovations and investments, which are triggered by profitable opportunities.

[5] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972
[6] EECC, recital 7:
[7] EECC, Article 61(1)

As such, contrary to what is often argued, there is not always a trade-off between static and dynamic efficiency. This depends on the degree of uncertainty concerning the innovation frontier (within a reasonable time frame). When there is a clear and substantial innovation potential with positive dynamic spill-overs to the rest of the economy, maximisation of the NPV of current and future welfare streams may require higher retail prices to include an appropriate risk premium and to signal opportunities to invest. Such risk premiums and signalling functions are essential for incentivising entrepreneurs to whom it remains to be seen how much of the social welfare gains will be translated into profits. Alternatively, when the innovation potential is clearly (almost) depleted, retail prices may be lower and reflect that there are little extra gains to be realised. Only when it is uncertain whether the innovation potential is depleted or not, maximisation of the NPV of consumer welfare requires a balance between static and dynamic efficiency gains, where the weights in the balance are a function of (the assessment of) the degree of uncertainty.

Throughout the EECC, priority is given to investment in VHCNs. This is because of the obvious innovation potential: fibre(like) gigabit networks are an essential catalyst for exploiting the potential of the ever-expanding digital economy. It follows that a competitive market outcome is characterised by retail prices that include mark-ups reflecting the scope for dynamic efficiency gains, so that network operators (both vertically integrated as well as non-integrated operators) maintain incentives for investing in the roll-out of fibre(like) networks that can deliver gigabit-speeds.

3.2.2 What are high and non-transitory barriers to replication?

The question of high and non-transitory barriers to replication presupposes a business perspective regarding an investment decision to replicate an asset, which may be hampered if there are technical, legal or economic barriers to replication. The term "high and non-transitory" barriers to replication alludes to the three-criteria test used in the market analysis for determining whether a market should be subject to ex-ante regulation.

In industries characterised by the presence of infrastructure, the term 'high barriers' prominently relates to the high investments needed to duplicate the network assets that are required for entering a market. Typically, the firm needs to realise a certain scale in order to recoup these investments; that is, these investments give rise to economies of scale. The extent to which scale economies render replication socially inefficient depends on whether, after entering the market by duplicating the assets, there is scope for product differentiation and innovation increases. If that is the case, post-entry competition is more likely to be based on non-price characteristics of the product or service, prices include mark-ups necessary for recovering investments. In the absence of differentiation and innovation, services are homogeneous so that post-entry price competition will be fierce ("Bertrand competition"), driving down profits and inhibiting investments.

Replication barriers may be considered 'non-transitory' when the need for making these investments is unlikely to disappear in the future (e.g. due to a limited scope for technological developments) or when it is unlikely that, given the degree of post-entry price competition, the firm will be able to realise sufficient scale. Concerning the latter, the SMP framework recognises that potential entrants face a "chicken and egg" problem: they need critical mass before they are able to invest, but without investing they are unable to generate critical mass. To address this problem, the ladder of investment policy is intended as a two-stage policy approach, where mandated access first helps challengers to obtain sufficient scale, and once that has happened, the access obligation can be lifted in accordance with a predefined sunset clause. But the overall objective is always to secure infrastructure investment so as to enhance innovation and increase consumer welfare.

Barriers to replication are therefore 'high' if an entrant, after investing in its own infrastructure and capturing a substantial part of the market, is not able to earn a profit. These high barriers to replication are 'non-transitory' if temporary access obligations are not able to catalyse challengers' investments in their own infrastructure.

3.2.3 Why is the focus on passive civil infrastructure?

The EECC is clear and consistent in its preference for restricting access regulation to passive infrastructure. The reason is spelt out in Recital 187 (with emphasis added):

> ***Where civil engineering assets exist and are reusable**, the positive effect of achieving effective access to them on the roll-out of competing infrastructure is very high, and it is therefore necessary to ensure that access to such assets can be used as a self-standing remedy for the improvement of competitive and deployment dynamics in any downstream market, to be considered before assessing the need to impose any other potential remedies, and not just as an ancillary remedy to other wholesale products or services or as a remedy limited to undertakings availing themselves of such other wholesale products or services. National regulatory authorities should value **reusable legacy civil engineering assets** on the basis of the regulatory accounting value net of the accumulated depreciation at the time of calculation, indexed by an appropriate price index, such as the retail price index, and excluding those assets which are fully depreciated, over a period of not less than 40 years, but still in use.*[8]

The emphasis is on reusable assets, such as ducts, poles and manholes. Access to these assets can materially improve the prospects of competitive outcomes for end-users and overcome physical and economic barriers that might otherwise be insurmountable for new market entrants. These potential and consequential benefits justify the imposition of a discounted regulatory value when setting prices for access to such assets.

It is important in this context to note that trenches are not physical assets in the manner of ducts, poles or manholes. Trenching is the capitalised installation cost for another asset, either ducts (in the event that they are deployed) or cables (in the event that they are directly buried). Trenches are therefore "reusable" only to the extent that the installed physical asset, to which trenching costs are allocated, are themselves reusable (i.e. only where there are ducts).

In the pursuit of VHCNs it is clear that, whereas ducts are in general fully reusable, this is not the case for copper or coaxial cables: they will, at least beyond the first concentration/distribution point in the network, sooner or later need to be replaced by fibre. Indeed, the EECC also allows for the possibility that in due course fibre itself may be replaced by other technologies, in particular wireless technologies:

> *The current response towards that demand is to bring optical fibre closer and closer to the user, and future 'very high capacity networks' require performance parameters which are equivalent to those that a network based on optical fibre elements at least up to the distribution point at the serving location can deliver. ··· In accordance with the principle of technology neutrality, other technologies and transmission media should not be excluded, where they compare with that baseline scenario in terms of their capabilities. The roll-out*

[8] EECC, Recital 187

of such 'very high capacity networks' is likely to further increase the capabilities of networks and pave the way for the roll-out of future wireless network generations based on enhanced air interfaces and a more densified network architecture.[9]

[9] EECC, Recital 13.

4 THE BIPT/AXON COST MODEL

This chapter sets out our analysis of the BIPT cost models developed by Axon Consulting to estimate costs for access to the cable networks in Belgium, and Telenet in particular. We have reviewed the inputs and assumptions within the model and, as a result, propose a number of changes to the model so as to implement EC Recommendations better and more closely to match the reality of Telenet's network and operations.

More fundamentally, our analysis has given rise to serious concerns about the robustness of the cost model and, in particular, its behaviour in response to changes in demand. The model seems to adopt a static view of network deployment and does not flex network design in light of demand growth. So, for example, whereas in practice an HFC network will gradually roll out fibre closer to the customer and deploy more fibre nodes as demand grows, there is no such development of CAPEX within the model. The errors caused by this static view of the network are then compounded and magnified by the use of economic depreciation, which links cost-recovery to demand forecasts that are speculative especially over the long term.

Our concerns are detailed in Annex A of this report. Properly addressing these issues would require a substantial amount of remodelling work, which is beyond the scope of our analysis. However, they suggest that BIPT should use the results of the model with extreme caution, as the model results are highly unstable, largely because of the peculiarities of the economic depreciation method that is used. At the very least it is necessary to build in some headroom when setting prices, especially for high-capacity services, in case the demand forecasts in the model prove to be wrong, and the costs are understated. Similarly, we urge BIPT to consider using a tilted annuity approach rather than economic depreciation which is just too sensitive to highly uncertain demand forecasts.

4.1 GENERAL SENSITIVITIES OF THE MODEL

The BIPT/Axon cost models have evolved substantially from a generic cost model applicable to all cable operators presented in 2018 to a 'tailored' model specific to Telenet, Nethys and Brutélé published in 2019.

There are substantial differences in the outputs of the 2018[10] and 2019[11] cost models. Taking the monthly cost of cable retail access in 2020 as an illustration, the costs in 2019 are only 63% of the level predicted in 2018 – 9.91 compared with 15.79 Euro per line per month, i.e. a reduction of 37%. What causes these differences?

It is difficult to compare the models directly because the two models that we have access to are constructed on a different basis. The 2018 model is a public version using (presumably) average data inputs for the three Belgian cable operators; whereas the version of 2019 model that we have seen is specific to Telenet. Some difference in outcomes is therefore to be expected.

In most of the data input sheets there are small differences in the assumptions between the 2018 and the 2019 versions. For example, there are small variations in unit costs, cost trends, mark-ups and cable lengths. These are consistent with the kind of variations that might be expected between Telenet and the average cable operator. Without having comparable models to analyse (i.e. either

[10] File name: 20181205 - Axon Consulting - Cost model for HFC networks - PUBLIC VERSION.xlsm
[11] File name: 2019_07_09_cost_model_hfc_v9.1_telenet.xlsm

the Telenet model for both years or the average operator for both years), and without full model documentation, we cannot determine for certain whether Axon has made any significant changes to these inputs between 2018 and 2019. However, for the purposes of our analysis, we make the working assumption that there were no significant changes to these inputs between the two models: it appears that any changes that have been made have had only marginal impact on the model's results.

This discussion provides another important illustration of the difficulty in reviewing the current version of the model and supports our findings about the lack of robustness of the model and the need for better documentation before making any final regulatory decisions based upon the model.

4.2 REBALANCING OF ACCESS AND SERVICE COSTS

One of the major changes made to the BIPT/Axon cost model between 2018 and 2019 was a redistribution of costs from access to broadband services. This change was made, at least in part, as a response to comments made by Telenet on the 2018 model. The following cost categories have been re-assigned to broadband services in 2019:

- Optical nodes
- Fibre feed cabling
- Access network NIU
- Access cable TAPs (4-way and 8-way)
- Splitters
- Amplifiers.

Collectively these assets amounted to 21% of the asset base in the 2018 model, so it was to be expected that this rebalancing would significantly affect the output service costs in the model. This has indeed happened, with the costs of broadband services increasing, while the costs of access services have fallen.

TABLE 4-1 COSTS FROM THE BIPT-AXON COST MODEL OF ILLUSTRATIVE SERVICES

Euro per month	Cost in 2020 from the 2018 model	Cost in 2020 from the 2019 model	Percentage change
Access line – retail	15.79	9.91	-37%
Access line - wholesale	15.74	9.87	-37%
Broadband Retail 75Mbps	0.96	2.31	+140%
Broadband Wholesale 75Mbps	2.27	6.99	+208%
Broadband Retail 500Mbps	0.53	2.95	+456%
Broadband Wholesale 500Mbps	1.34	8.99	+571%
Retail Digital TV, SD channel	595	3642	+512%
Wholesale National Ethernet Transport	0.51	0.29	-43%
Wholesale 10GE port	36.24	36.77	+1%

A full investigation of the working of the model is beyond the scope of this exercise, but the change in the results of the BIPT-Axon cost model between 2018 and 2019 indicates some rebalancing between access and broadband services, albeit that we consider the gradient still to be insufficient for high-capacity services. The 2019 model is, in this sense at least, an improvement on the 2018 model.

For the purposes of this report, as we look into other changes that have been made between 2018 and 2019, we will consider the impact on three Illustrative Service Costs[12], taken from either side of the rebalancing that has occurred within the methodology, namely:

- Illustrative Service Cost 1 (ISC1): Access line – wholesale;
- Illustrative Service Cost 2 (ISC2): Broadband Wholesale 500Mbps;
- Illustrative Service Cost 3 (ISC3): Digital TV wholesale HD channel.

4.3 IMPACT OF GEOGRAPHIC DE-AVERAGING

The most obvious difference between the 2018 and 2019 cost models is the separation into different versions for the different geographical areas served by Telenet, Nethys and Brutélé. The resulting Broadband Access Line tariffs for the three cable operators in Belgium are provided in the Table below:

TABLE 4-2 BROADBAND ACCESS LINE TARIFFS FOR THE THREE CABLE OPERATORS

Element van facturering		Eenheid	Brutélé	Nethys	Telenet
Toegang		€/lijn/maand			
	Toegang standaard		€ 9,34	€ 12,55	€ 9,54
	Toegang indien gecombineerd met BB > 200 Mbps en <= 600 Mbps		€ 9,81	€ 13,18	€ 10,01
	Toegang indien gecombineerd met BB > 600 Mbps		€ 10,28	€ 13,80	€ 10,49

The access line price of Brutélé for broadband speed below 200Mbps is proposed to be 9.34 Euro per month, the access line price of Telenet is proposed to be 9.54 Euro per month, and the access line price of Nethys is proposed to be 12.55 Euro per month. The difference between the lowest and the highest (standard) access line price is 3.21 Euro.

These differences are substantial: they suggest that the cost base of Nethys is higher than that of Brutélé by 34.4%, and that of Telenet by 31.6%. They are also surprising, particularly in light of the exclusion of a high proportion of access line costs in the BIPT/Axon model owing to asset revaluation in the RAB.

[12] These Illustrative Service Costs are taken directly from the BIPT/Axon cost model, worksheet 12B. The numbers in the BIPT draft Decision are different.

This section investigates why the broadband access line tariffs vary so much across the three cable operators in the 2019 BIPT/Axon model.

4.3.1 Assumptions we made for the BIPT/Axon model v9.1

To investigate the large differences between the proposed access line tariffs, we made the following assumptions regarding the methodology and structure of the BIPT/Axon cost model:

- First, because of the sharp drop in the magnitude of these tariffs relative to the results calculated in the 2018 model[13], we assume that a large proportion of RAB assets has been excluded in all the cable networks for all cable operators, as investigated in Section 4.5 of the report.
- Second, we assume the network topology for all cable networks has been established through machine algorithm rather than actual placements of local headend and node infrastructure[14,15].
- Third, we assume each cable operator reported and interpreted the requested cost data for the model in a similar manner. One obvious explanation for some of the discrepancies across cable operators could be that operators are interpreting and reporting the cost data in different fashion, though we have no way of investigating this potential discrepancy.

Despite these simplifying assumptions regarding the cost model, a fact-based explanation of the disparity in outcomes is not possible for two important reasons:

1. The lack of documentation in version 9.1 of how most model outputs are generated given model inputs
2. Lack of any access to the proprietary model input data submitted by Brutélé and Nethys regarding the unitary costs of their networks. This prevents direct comparisons between the network operators' cost data to clearly support significant variances in model outputs.

4.3.2 Possible explanations for the differences in access line tariffs

Although a fact-based explanation is not possible, there are several general reasons why the full cost of the access line might be different across cable operators independent of the input assumptions and structure of the cost model:

1. *Different service footprints by geotype.* As a rule of thumb, the CAPEX and OPEX per home passed fall with increasing population density. Thus, generally speaking for all cable systems costs, the cable operator service areas with the highest overall average population density should be expected to have the lowest tariffs.
2. *Different degrees of system aggregation in overall service footprints (or systems that are not clustered together).* Another rule of thumb is that cable system costs per home passed decrease as the contiguous size of the cable service area increases due to the ability to

[13] See: https://www.bipt.be/en/operators/telecommunication/Markets/price-and-cost-monitoring/cable-and-ftth-cost-models/hfc-cost-model-public-version

[14] The algorithm and the methodology is described in the Descriptive Manual, (Section 5, pp. 15-24). See: https://www.bipt.be/public/files/en/22684/2018-12%20Descriptive%20Manual%20HFC%20FINAL%20EN.pdf

[15] Telenet pointed out in its response to BIPT, "Reply on the consultation of the Council of the BIPT of 13 December 2018 regarding the cost models for cable wholesale services", dated 15 February 2019, that *"The followed methodology introduces significant differences with reality as it fails to take into account current (e.g. the model could place optical nodes or cable in the middle of a dwelling unit) and past constraints (i.e. the network was deployed following the evolution of urbanization while minimizing the distance to the existing network rather than minimizing total network length in a greenfield scenario). This leads to an underestimation of the required number of network elements up to 23% depending on the network element under consideration."*

better share significant fixed costs associated with headend and metropolitan area fibre network transport facilities.

3. *Different percentage of duct or buried plant*. The cost of managing and installing network cable is a large percentage of the overall cost of cable network deployment. Installation costs, in particular, vary significantly depending upon whether conduit or duct is installed to hold the network cable, it is buried into the ground without duct, or it is strung up on utility poles above the ground.
4. *Different degree of cost sharing across non-RAB network elements*. Since the geotype categories are fairly broad, the variation in population densities within the same geotype category can be significant enough to have a significant impact upon the overall cost per subscriber of the cable system.
5. *Different efficiencies in operations*. A final explanation for cost differences could be the level of investment in operations infrastructure or condition of plant that could significantly impact the overall OPEX for the system.

The degree to which these factors may account for the tariff discrepancies between Brutélé, Nethys, and Telenet would require a comparative analysis of the service footprints and current state of deployment of these companies. While such an analysis is beyond the scope of this report, this list of general factors is nonetheless useful to identify potential explanations for the tariff discrepancies that could be explored in the future if necessary.

4.3.3 Specific problems with the Telenet model

There is also a set of more specific possible reasons for the tariff discrepancies that are dependent upon the actual cost model inputs provided by Telenet into version 9.1 of the BIPT/Axon cost model. In short, the specific input values used by BIPT to calculate the Telenet tariffs may be the source for differences in the access line tariffs. (It is also possible that similar errors have been incorporated into the other cable operators' cost models, but we have no way to check this.)

This list of possible reasons includes:

1. The cost model significantly understates the amount of access network spectrum *reserved* for broadband capacity. [redacted] Similarly, the model overstates analogue TV capacity: [redacted] Even more concerning, the model adopts a static view of spectrum allocation, for example failing to take any account of the plan to switch off the analogue system within a couple of years. By understating broadband spectrum requirements compared with other services, the model underestimates the correct amount of network common costs that should be allocated to broadband services.
2. The cost model significantly overstates the amount of Telenet's urban cable systems. [redacted] By overstating the urban geotype, the access line tariff for broadband services will

[redacted]

[17] The split is based on Telenet's estimates.

underestimate the correct amount of higher network costs generated by the suburban and rural geotypes that should be reflected in the access line tariff for broadband services.

3. The cost model does not include recurring cost pools such as network repositioning, cable replacement, and underground cable position. [redacted]

Based upon this list of Telenet-specific input issues, appropriate changes in the input assumptions to the correct amounts should result in increases in the Telenet tariffs for broadband services. This does happen in two of the cases mentioned but, strangely, changing the distribution of access lines between urban/suburban/rural areas has no impact on the cost model results. This suggests that there is a problem in the model design that should be investigated further by BIPT/Axon. [redacted]

4.3.4 Recommendations

We have been unable to reach a definitive explanation of the significant cost differences between the three cable operators because we do not have access to the versions of the 2019 cost model for Nethys and Brutélé, neither do we have access to the 2019 model documentation. However, the analysis that we have been able to undertake suggests that:

- The cost results for Telenet are understated, due to underestimates of spectrum costs, network repositioning and cable replacement costs;
- The model seemingly does not take into account the distribution of access lines by urban, suburban and rural geotype – a distribution that inevitably varies between operators;
- The extent of cost differences between the operators is hard to reconcile with the fact that regional variations are largely to be expected in the access line costs that have themselves been significantly devalued before being inserted in the model;
- The use of three operator-specific models gives a spurious sense of reasonable geographical averaging. Regardless of this choice, lower-cost urban users will subsidize higher-cost rural users as costs are averaged across these geotype categories.

Unless these issues can be explained properly and resolved satisfactorily, we believe that a justification for using three models is lacking, and we recommend that BIPT continues to set cable access prices on the basis of a single nationally-averaged efficient-operator rate.

[18] See: Telenet's "Reply on the consultation of the Council of the BIPT of 13 December 2018 regarding the cost models for cable wholesale services", dated 15 February 2019.

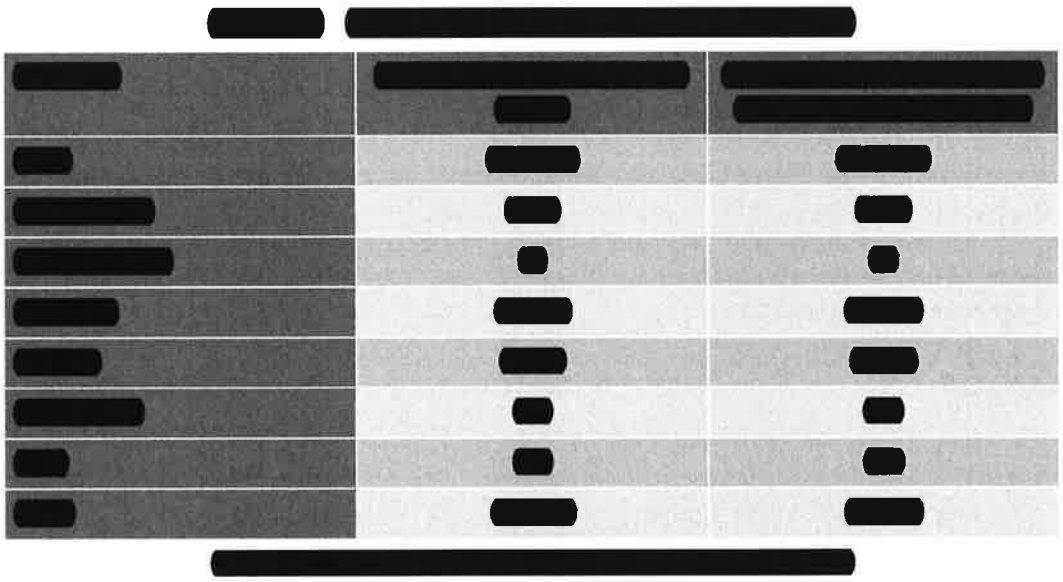
4.4 CONSISTENCY WITH TELENET DATA SUBMISSIONS

It was difficult for Telenet to compare input assumptions in the 2018 cost model with the data that it had provided to BIPT because the published model was based on a hypothetical operator created from a blend of Telenet, Nethys and Brutélé data. However, the BIPT/Axon 2019 cost model has a version corresponding to each operator's network, and the version 9.1 that has been provided to Telenet is a version of the BU-LRIC model calibrated to provide an approximation of Telenet's costs.

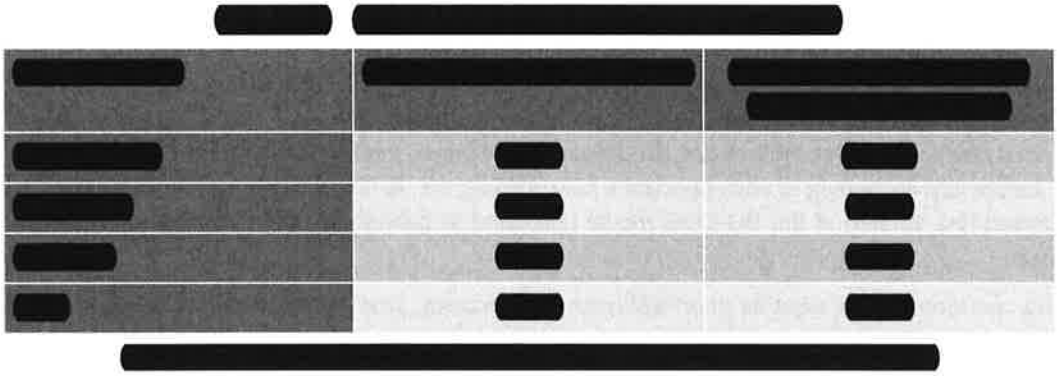
The question arises whether this calibration is accurate, and hence whether the costs are reasonable. This question was briefly answered in the previous section in relation to the specific issues of spectrum costs, network repositioning and cable replacement costs. In this section we look more broadly at how well the BIPT/Axon model reconciles with Telenet's actual network implementation.

This is not simply a matter of checking the input assumptions used in the BIPT/Axon model. The model takes a number of network design parameters (themselves based on input data from the operator) and uses these to determine the number of assets required to construct a cable network of the relevant scale and scope in each of three geotypes: urban, suburban and rural. The full network asset base is, therefore, an output of the BIPT/Axon model, which has to be compared with the actual data (for 2017) that Telenet provided to BIPT.

In the table below we compare these two sets of data. It can be seen that the BIPT/Axon model provides a good approximation of the Telenet network.



Similarly, the 2019 model provides a reasonably accurate assessment of the length of cabling within the network.



The one area where there is major inconsistency between the BIPT/Axon cost model and the Telenet data submission is in trenching. The 2019 BIPT/Axon cost model computes a total of 47,124km of "trenches – with ducting". However, Telenet reports that all of its cable is directly-buried (without ducting). This discrepancy is significant in relation to the calculation of the Regulatory Asset Base, as described in the next section.

4.5 IMPACT OF THE REGULATORY ASSET BASE

4.5.1 How RAB is implemented in the BIPT/Axon model

The most significant change in the methodology between 2018 and 2019 concerns capital expenditure in the access network. In the 2018 model all assets were included on the basis of Gross Replacement Cost (GRC), although 20% of trench costs were excluded entirely on the basis that these were fully depreciated assets even though they were still in use[19]. This approach was consistent with the approach that BIPT had previously adopted when constructing a cost model of the Proximus network.

If these assets (i.e. the 20% of trench costs) were valued in the same manner as all other assets, then the cost of wholesale cable access in 2020 (ISC1) rises from 15.75 to 17.11 Euro per line per month. The exclusion of part of the passive trench infrastructure in the Regulatory Asset Base (RAB) thus results in an 8% reduction in access prices (ISC1) but does not affect broadband or TV service prices (ISC2 and ISC3).

In the 2019 model this approach of excluding passive assets within RAB approach has been greatly extended:

- It now applies to all trenches, manholes, poles and coax cables
- The extent to which these costs have been excluded is dependent on the date of purchase and the expected asset lifetime.
- In total 57.4% of the asset value is excluded – thus almost three times as much proportionately, and on an asset base that is 45% larger than in the 2018 model.

These changes have a dramatic impact on the model. For example, in the 2018 model the total CAPEX component of the ISC1 was 11.23 Euro; in the 2019 model it had fallen to 6.64 Euro, accounting for 78% of the overall drop between the 2018 and 2019 models.

There are two linked problems with these numbers:

- Separate figures are hard-coded in the model (worksheet 2G) for the GRC and the Net Replacement Cost (NRC) with the latter being used to derive service costs. It is not clear how the NRC figure is derived from the GRC figure, although in principle the exclusion should equate to the amount that the asset has depreciated to date. Since the NRC is set to zero for all assets purchased prior to 1999, it appears that a 20-year asset lifetime has been used, and the NRC figures are roughly consistent[20] with a 20-year asset life (i.e. 1/20th of the GRC being discounted for each year that the asset has been in service).
- In worksheet 2E, the RAB asset lifetime, which is used elsewhere in the model but does not appear to be used to derive the NRC figures in 2G, is stated as being 35 years. This is unduly long. Telenet in its data submission[21] indicated that it uses a 20-year lifetime for all its directly-buried cable infrastructure. This is also the asset life used by BIPT in the Proximus cost model. [redacted]

4.5.2 Has Axon followed the EC Recommendations?

The 2018 cost model appears to follow the basic requirement of a BU LRIC+ costing methodology. It also appears to fulfil the requirement of excluding fully depreciated non-replicable reusable legacy civil engineering assets (albeit that the % of assets thus excluded is open to question).

With regard to the implementation of the RAB, the 2018 model did not discount asset values to take account of the elapsed economic life. It was not therefore compliant with the EC Recommendation.

The 2019 cost model has clearly been designed with the intention of addressing these issues. In the 2019 model asset valuations:

1. are valued at current costs
2. take account of the assets' elapsed economic life (cost already recovered)
3. use an indexation method, relying on historical data on expenditure, accumulated depreciation and asset disposal from Telenet's regulatory accounts
4. are locked-in and rolled forward.

However, there remains a crucial flaw with the 2019 model. Whereas, the EC Recommendation and the EECC both require that adjusted valuations within the RAB should only apply to reusable and non-replicable civil engineering assets and they explicitly exclude the transmission medium, in the BIPT/Axon model the costs of the transmission medium (coaxial cable) are bundled with the costs of trenching and the entirety is discounted to NRC.

It may further be pointed out that the EC Recommendation was written with a particular focus on copper networks, in which the wire is typically laid in ducts, and those ducts can be re-used for other wires (copper or fibre) that may subsequently be installed in them. For this reason, the ducts, and the trenching costs which were incurred in order to install those ducts, may be considered reusable and unlikely to be replicated – alternative suppliers would rather simply use the existing ducts.

[20] The total NRC in the BIPT/Axon 2019 cost model is EUR 524k, whereas our automated approach yields a NRC of EUR 544k when a 20-year RAB asset life is used.
[21] File name: Axon Consulting - Data Request for Cable Operators_part IV.xlsx [redacted]

In contrast, the prevailing practice of Telenet (and the other cable network operators in Belgium) is to bury coaxial cables directly without any ducting. This means that an alternative operator, not having any ducts through which to pull its cable, would need to replicate this infrastructure including the digging of trenches. The trench costs are really just the costs of installing the transmission medium, these trenches are not reusable, and they should be treated in the RAB in exactly the same way as the coaxial cable, or any other non-reusable asset.

It is also worth noting that assets with "only" a 20 year life cannot reasonably be construed as being non-replicable, since the relatively short lifetime is an indicator that they will indeed need to be periodically replaced – and as such this could be done by alternative providers that spot an opportunity to innovate and improve upon the existing deployed technologies.

4.5.3 Impact of incorrect RAB revaluations

Our conclusions concerning the RAB are as follows:

- The 2018 model is not fit-for-purpose because it does not properly follow the EC Recommendations.
- The 2019 model represents an improvement both in terms of rebalancing of costs between access and broadband services and in implementing the costing methodology proposed within the EC Recommendation and the EECC.
- However, the 2019 model needs substantial adjustment so as to comply with the EC Recommendation and the EECC concerning the RAB.
- The correct approach, in our view, is to revalue (index-linked and based on the accumulated depreciation to date) only the reusable civil engineering assets which, in the case of Telenet, is just manholes and poles. If this approach is followed then the RAB asset life should be set at 40 years, as stipulated in the EC Recommendation and the EECC. All other assets should be valued at current replacement cost, using their actual asset lives.
- This approach cannot be achieved without substantial reworking of the BIPT/Axon cost model. However, we have derived an approximation of this outcome by looking at the detailed CAPEX in the 2018 model, using 2020 as the reference year, so as to determine the proportion of the revalued RAB within the 2019 model that may be attributed to each of the four asset types. This suggests that 49% is trench cost; 43% is coaxial cable cost; 1% is manholes and 7% is poles. Consequently, we have restricted the revaluation in the 2019 model to 8% of the GRC.
- [redacted]

[redacted]

4.6 OVERALL ASSESSMENT OF COST MODEL RESULTS

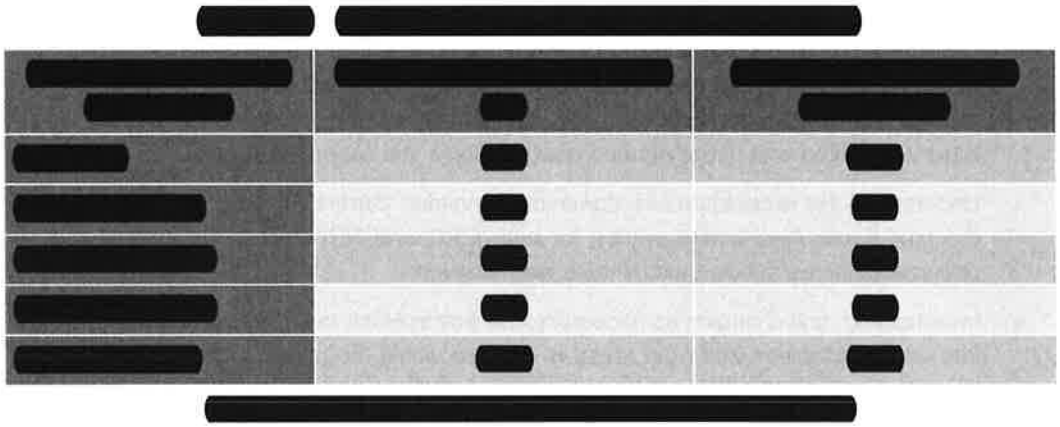
The 2019 BIPT/Axon cost model exhibits a number of problems that need to be addressed before it is used in price regulation. Three matters in particular can only be properly addressed by Axon Consulting because they require significant investigation and amendment within the calculation engine of the model. These include:

- Limiting the revaluation of assets in the RAB (index-linked and based on the accumulated depreciation to date) to the reusable civil engineering assets as specified by the EC. In the case of Telenet, these assets comprise just manholes and poles: trenches are installation costs associated with directly-buried coaxial cables that cannot be re-used.
- Undertaking the revaluation in a transparent manner: currently it is completed outside of the model with hard-coded entries for both GRC and NRC within the model, and no documentation as to how those entries were derived.
- Investigating, and changing as necessary, the way in which the distribution of access lines into urban, suburban and rural areas is handled within the model. At present changing these input parameters has no apparent impact on the cost model results.

We have been able to derive an estimation of the likely model results should the RAB assets be correctly revalued and the model take account of Telenet's actual spectrum reservation for broadband services and its network repositioning and cable replacement costs. [redacted]

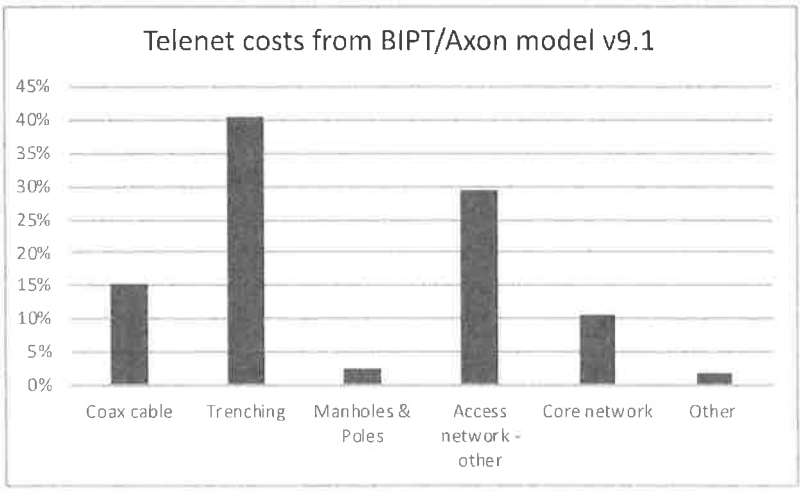
5 IMPACT ON INVESTMENTS

Using information resulting from the above workstreams, we have constructed alternative cost-based tariff scenarios[24] for the BIPT/Axon model, with the following results:



It is noted that by far the most material difference between these tariff proposals lies in the price of access lines. The main driver of this differential lies in the treatment of directly-buried coaxial cables: i.e. the coaxial cables and the trenches that need to be dug in which to lay them. In the RAB definition deployed by BIPT, these assets are revalued so that more than 50% of their gross replacement cost is excluded from the costs considered for cable access. This is a material issue, as can be seen in the below table, showing the breakdown of Telenet's costs in the BIPT/Axon cost model:

FIGURE 5-1 TELENET'S COSTS FROM BIPT/AXON MODEL V9.1



Note: Figures are based on the gross replacement costs of assets in 2020.

[24] This analysis excludes any mark-up for NGA investments (e.g. BIPT has propsed a 5% mark-up on >200Mbps service and 15% mark-up on >500Mbps service).

The exclusion of these assets is very likely to impact on Telenet's investment incentives in a number of ways.

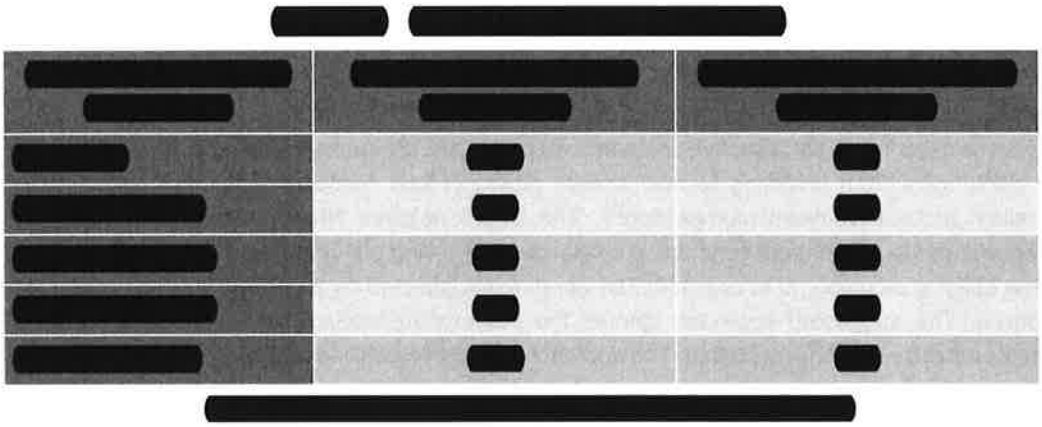
First, there is broad consensus among academics that a business model based on regulated access remains relatively attractive when access prices are set too low, leading to lower net-gains for challengers from investing in own access networks and hampering or even blocking the transition to facilities-based competition[25]. The EECC requires NRAs to take account of the incentives that price controls send out to challengers for rolling out fibre, resulting in a competitive threat obliging incumbents to upgrade. The approach suggested by the BIPT, however, does the opposite. The suggested approach ignores the costs of replicating the access network as it assumes that it cannot be replicated. The approach thereby results in excessively low access prices that do not reflect the costs for entrants of building their own access networks. The suggested approach thereby distorts the entrants "build-or-buy decision" and takes away its incentives to climb the ladder of investment by investing in its own FttH access network. This is particularly troubling given the profile of Orange, i.e. a mature competitor with a strong presence in the mobile market, national coverage of its mobile network and a large fixed broadband and TV customer base using Telenet's wholesale offer. Given this profile, and applying the basic principles underpinning the ladder of investment concept, Orange should be stimulated to invest in its own fixed access network and not be heavily incentivised to stay on its 'current rung'[26].

Second, by taking away Orange's incentives to invest in its own FttH network, the proposed changes neutralise a competitive threat for Proximus and the cable operators. The proposed changes thereby reduce incentives for Proximus and cable operators to invest in upgrading their own access networks[27]. A second order effect of the proposed changes is that, while entrants enjoy excessively low access prices on cable networks, they will be less inclined to switch to wholesale access offered by Proximus if Proximus were to invest in FttH roll-out. As a consequence, Proximus will have lower potential wholesale revenues which further reduces its incentives to invest in FttH. This in turn further reduces the incentives of cable operators to invest in network upgrades.

Third, the proposed tariff structure features an increasing disparity between cost and price for high bandwidth services which further negates incentives to invest in broadband enhancements and even results in perverse market outcomes.

The tariff gradient for wholesale access proposed by BIPT is insufficient, with high-speed broadband access being offered at a too modest premium for lower speeds. This is shown in the following table contrasting the proposed access tariffs with the real costs to Telenet.

[25] See Cave 2006, Bourreau et al. 2010, Vogelsang 2014, Cave 2014, Renda 2016, Briglauer 2017,
[26] Orange's profile in the Belgian market is comparable to that of T-mobile in the Dutch market. T-mobile is currently rolling out its own FTTH networks in the Netherlands; See https://www.t-mobile.nl/blog/t-mobile-start-uitrol-glasvezel-den-haag/
[27] This is confirmed by recent statements by the CEO of Proximus, stating that the proposed cable wholesale rates will decrease incentives for Proximus to roll out its 3 billion Euro fibre investement plan.



The table shows that, under the BIPT proposal, Orange could buy a 1 Gbps service for a lower tariff than the cost to Telenet of 500Mbps service or Orange could buy a new 500 Mbps service for a lower tariff than the cost to Telenet of 150Mbps. It follows that Orange can offer very high download speeds at no additional charges and that Telenet must recoup these costs by increasing its own retail prices. The proposed pricing structure would result in a perverse competitive process in which end-users switch from Telenet to Orange (where they are offered higher speeds at lower prices), which drives up the average costs for Telenet (since more Orange clients will be demanding higher speeds while fewer Telenet client need to bear the additional costs of these higher speeds), which again leads to higher retail prices for Telenet, which again leads to end-users switching from Telenet to Orange, et cetera.

Finally, the BIPT undermines regulatory certainty in Belgium. The proposed costing methodology breaks with past regulatory practices in Belgium and is non-compliant with the 2013 EC Recommendation on costing methodologies. The moment Telenet is about to conclude a 5-year investment cycle (i.e. the upgrade to DOCSIS 3.1, a process which was initiated in 2014), BIPT changes the rules which leads to a dramatic decrease of Telenet's wholesale revenues. By proposing such a dramatic change at the end of such an important investment cycle, the BIPT undermines regulatory certainty in Belgium; not only for Telenet, but for all parties that are willing to invest in the Belgian telecom market (now and in the future).

ANNEX A: CONCERNS WITH THE MODEL

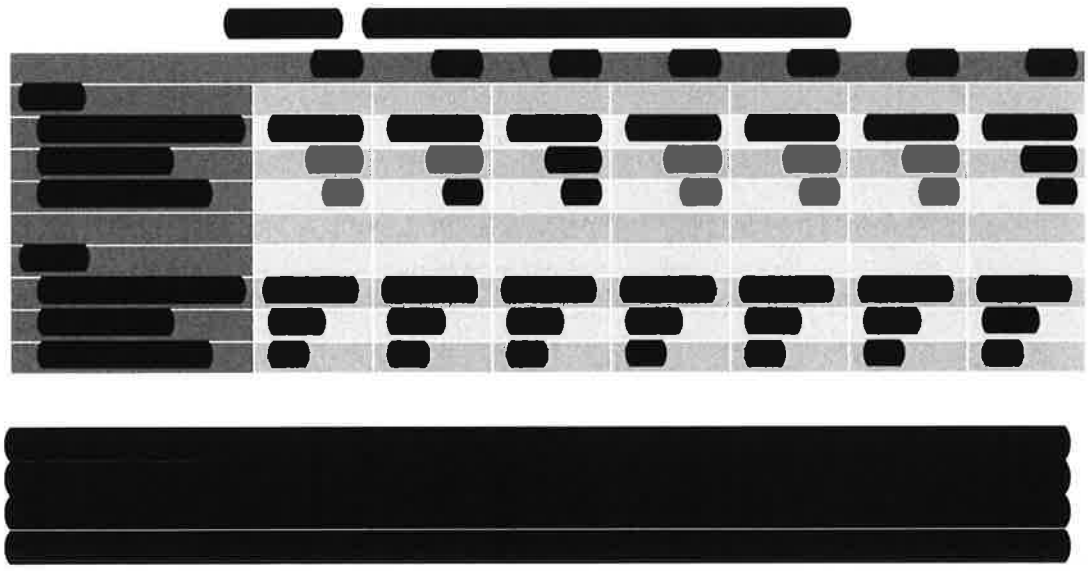
Our analysis of the 2019 BIPT/Axon cost model has identified some major concerns with the way in which the model responds to certain changes in assumptions, particularly as regards future broadband demand. The effects of such changes in the input assumptions are often counter-intuitive: e.g. service costs rise when they would be expected to fall.

In this Annex we identify what we believe is the cause of this problem (a static view of network deployment which does not allow network design to change in light of demand growth, and the use of an economic depreciation methodology that means current-year cost outputs are substantially affected by speculative long-term demand forecasts), and illustrate the problem with reference to one specific input assumption (the year-on-year growth in broadband usage per subscriber). We note, however, that similar issues arise with other areas of demand projection, such as the relative usage levels of wholesale and retail customers, and the relative scale of upstream and downstream demand.

The BIPT/Axon cost model would need a major methodological overhaul to correct for these problems. This would take time, could only be done effectively by Axon as the authors of the model, and would necessarily result in a further period of stakeholder consultation by BIPT. At the very least some headroom is built into the wholesale prices that are set on the basis of the model – significantly greater than the 5-10% mark-ups that have been proposed to date – so as to increase the chances of the operators being able to cover their costs. Failure to do this will, inevitably, further reduce the incentives for cable operators to invest in very high capacity networks in the years ahead.

A1 THE PROBLEM OF STATIC NETWORK DESIGN

The table below compares the number of fibre nodes calculated within the model with those actually present in the Telenet network, looking at the years 2013 through to 2019.



[redacted]

It is apparent that the model assumes a constant relationship between households passed and the number of fibre nodes required. Thus, the model is completely ignoring the reality of a modern HFC network where the amount of fibre is steadily increasing, the amount of coax is steadily decreasing, and the number of households passed per fibre node is also decreasing. The model presents an inaccurate picture of recent history, but it will be ever more inaccurate projecting into the future. [redacted]

This problem of static network design appears elsewhere in the model as well. For example, spectrum allocated to each service remains the same for every year regardless of the demand forecast[28], and likewise the number of channels for analogue and digital TV remains fixed throughout the forecast period regardless of total demand or the assumed usage in the peak hour.

Clearly, just from the above analysis, the model is not fit for purpose. BIPT/Axon seems to be taking the view that increases in access speed and increases in customer usage can both be easily met without further development of the HFC network. At best this is an oversight, at worst it shows a complete lack of understanding of the way in which modern HFC networks are evolving. Either way it seriously undermines the credibility and usability of the model's results.

A2 THE IMPACT OF VARYING GROWTH RATES

The BIPT cost model includes the capability to estimate changes in HFC network costs due to different levels of year-on-year (YoY) growth rates for broadband usage. Our analysis of the cost model results due to variations in the YoY growth rates, however, has generated model results that are incongruent with the normal cost characteristics of HFC networks delivering broadband services. Namely, when growth rates for broadband usage are *higher*, the cost model estimates the cost for broadband capacity actually *decreases* and generates correspondingly *lower* tariffs for broadband service despite the need for more network capacity. To be clear, this outcome means that the total cost remains the same but the per unit of use cost decreases. This section describes our analysis describing these concerns,[29] and the potential ramifications on the correctness of the structure and results provided by the current version of the BIPT/Axon cost model.

Lack of clarity about how the model works

It would be simpler to conduct an analysis of how the BIPT/Axon model works in making the relevant calculations dependent upon broadband usage growth rate assumptions if the cost model itself was well documented and transparent regarding how outputs are derived from input assumptions. Unfortunately, this is not the case, as we have noted elsewhere in the report. Lacking sufficient clear documentation, our approach here has been to simply vary the model input parameter for

[28] Although improved spectral efficiency for DOCSIS3.1 is factored into the calculations.
[29] During the analysis, we also discovered other inconsistencies regarding the model's output. For instance, for reasons we are unable to explain, we discovered that the direction of the changes in the wholesale costs estimates depends on the assumptions we make for the levels of the average traffic consumption in the busy hour. These inconsistencies also argue for better model documentation. For brevity, we did not include these results in this report but can provide additional details if required.

YoY broadband growth rate in order to gain a better, though imperfect, view of how the cost model actually works based upon the accompanying change in results.

The model should use the assumed YoY growth rate for broadband usage to estimate the incremental costs incurred in each future year for the additional equipment and network upgrades required to increase capacity sufficiently to satisfy the increase in usage for that year. Every year the cost for higher broadband capacity should reflect the first-year contributions for the new equipment (the cost model assumes a 7-year economic lifetime for DOCSIS equipment) plus prior year contributions for equipment yet to be fully depreciated.[30]

The industry norms or expected outcomes associated with this simple approach is that the CAPEX for network capacity will increase in relation to the level of growth in average usage forecasted for the network to support. Simply put, for any given year the CAPEX per user increases to accommodate higher levels of growth in network usage, because more equipment is needed. The increase in equipment is mainly, though not exclusively, an increase in the number of optical nodes, and associated increase in fibre cable to feed those nodes. If growth rates are assumed to be constant over time (as they are in the model), then the total cost for broadband capacity should increase if growth rates increase in all cases.

As will be shown next, we see this is not the case for the BIPT cost model.

Relevant BIPT Model Inputs and Outputs

Taken from the *Access Network Inputs (Tab '2A INP NW')* of the BIPT/Axon cost model (version 9.1, July 2019) that uses inputs customized to the Telenet network, the average consumption per user in the busy hour (Mbps), and the YoY trend of the consumption per user, are shown in the table below. YoY growth is assumed to be 15% for all broadband speed tiers with the exception of 1 Gbps tier, which is assumed to have a 35% YoY growth trend.

[30] Note that our comments here are restricted only to variations in YoY growth rates in future years. The BIPT cost model presumably assumes the same CAPEX for broadband capacity in prior years in its calculations for all variations in the future growth rate. Thus, any changes in CAPEX for broadband capacity in the years prior to 2019 should be the same across all scenarios regardless of any assumptions regarding future YoY growth trends and thus cannot be used as a possible explanation for tariff decreases in model calculations of broadband capacity tariffs. Likewise, another explanation could be significant decreases in equipment costs. The BIPT cost model does assume 7.89% annual decreases in DOCSIS CMTS equipment, but this well below the 25% or 35% usage growth rates that resulted in lower tariff values and therefore cannot serve as a likely explanation as well.

TABLE A 2 AVERAGE CONSUMPTION PER USER

Average consumption per user in the busy hour (Mbps)	Units	Telenet	YoY trend of the consumption per user in the short term (%)	YoY trend of the consumption per user in the long term (%)
Broadband.Broadband.Retail.25 Mbps	Mbps	0.2000	15.00%	15.00%
Broadband.Broadband.Retail.50 Mbps	Mbps	0.3276	15.00%	15.00%
Broadband.Broadband.Retail.75 Mbps	Mbps	0.4886	15.00%	15.00%
Broadband.Broadband.Retail.100 Mbps	Mbps	0.6028	15.00%	15.00%
Broadband.Broadband.Retail.125 Mbps	Mbps	0.6913	15.00%	15.00%
Broadband.Broadband.Retail.150 Mbps	Mbps	0.7637	15.00%	15.00%
Broadband.Broadband.Retail.200 Mbps	Mbps	0.8779	15.00%	15.00%
Broadband.Broadband.Retail.300 Mbps	Mbps	1.0389	15.00%	15.00%
Broadband.Broadband.Retail.500 Mbps	Mbps	1.2417	15.00%	15.00%
Broadband.Broadband.Retail.1 Gbps	Mbps	1.5168	15.00%	35.00%
Broadband.Broadband.Wholesale.Bitstream 25 Mbps	Mbps	0.2894	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 50 Mbps	Mbps	0.4741	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 75 Mbps	Mbps	0.7070	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 100 Mbps	Mbps	0.8723	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 125 Mbps	Mbps	1.0005	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 150 Mbps	Mbps	1.1052	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 200 Mbps	Mbps	1.2705	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 300 Mbps	Mbps	1.5034	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 500 Mbps	Mbps	1.7969	15.00%	15.00%
Broadband.Broadband.Wholesale.Bitstream 1 Gbps	Mbps	2.1951	15.00%	35.00%
Broadband.Broadband.Wholesale.1 Mbps (capacity reserved for nominal speed)	Mbps	-		
Broadband.Broadband.Wholesale.1 Mbps (dedicated capacity)	Mbps	1		
			15.00%	35.00%
			15.00%	35.00%

Running the model given these forecast growth rates generates the baseline results shown in the table below (taken from Worksheet *'12B OUT SERV LRIC+ UNIT COST'*, Cells 'L1013:N1036)

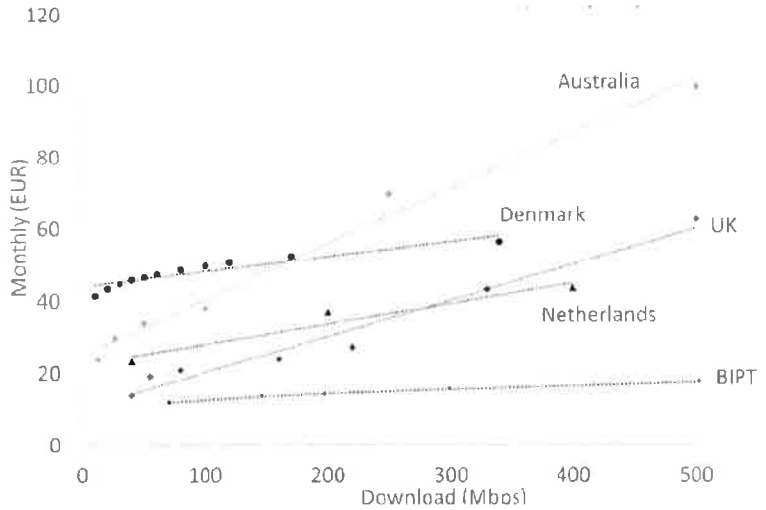
TABLE A 3 BASELINE MODEL OUTPUTS

BASELINE INPUT AND OUTPUT	Telenet	YoY trend	YoY trend of the consumption per user in the long term (%)		2019	2020	2021
Access.Cable.Retail Access					9.682262	9.912665	10.14579
Access.Cable.Wholesale Access					9.642558	9.873812	10.10767
Average consumption per user in the busy hour (Mbps)							
Broadband.Broadband.Retail.75 Mbps	0.48857	0.15	0.15		2.262002	2.305391	2.407734
Broadband.Broadband.Retail.150 Mbps	0.763722	0.15	0.15		3.607905	3.659013	3.805538
Broadband.Broadband.Retail.200 Mbps	0.87791	0.15	0.15		4.262541	4.304802	4.459485
Broadband.Broadband.Retail.300 Mbps	1.038873	0.15	0.15		5.335466	5.346401	5.496654
Broadband.Broadband.Retail.500 Mbps	1.241651	0.15	0.15		7.063836	6.988041	7.09279
Broadband.Broadband.Retail.1 Gbps	1.516803	0.15	0.35		0	0	10.15269
Broadband.Broadband.Wholesale.Bitstream 75 Mbps	0.707043	0.15	0.15		2.859428	2.954438	3.13147
Broadband.Broadband.Wholesale.Bitstream 150 Mbps	1.105234	0.15	0.15		4.636511	4.764108	5.023168
Broadband.Broadband.Wholesale.Bitstream 200 Mbps	1.270498	0.15	0.15		5.470103	5.599173	5.8821
Broadband.Broadband.Wholesale.Bitstream 300 Mbps	1.503425	0.15	0.15		6.795252	6.907542	7.208178
Broadband.Broadband.Wholesale.Bitstream 500 Mbps	1.796877	0.15	0.15		8.841386	8.885274	9.168297
Broadband.Broadband.Wholesale.Bitstream 1 Gbps	2.195068	0.15	0.35		0	0	12.72209

These results show how the projected Telenet tariff components for broadband speed and peak capacity vary by speed tier for retail and wholesale broadband services. While these tariffs do increase in magnitude as the speed of the broadband tier increases for the retail and wholesale services, we note the following concerns with these baseline inputs and cost model results:

1. *The tariff gradient by speed is not realistic to actual network costs.* The lack of significant differences in the tariffs for the different broadband speed tiers is not consistent with actual HFC network costs in Belgium or other countries. Figure 1 below shows how the overall magnitude and difference in the BIPT broadband tariffs is inconsistent with the tariff gradients implemented in other countries.

FIGURE A 1 UNIT WHOLESALE BROADBAND COST (EUR/PCM)[31]



Within the BIPT tariff structure itself, the baseline model results of broadband retail access for 2020 show a difference of only 4.7 Euro per month between the 75 Mbps tier (2.3 Euro) and the 500 Mbps tier (7.0 Euro). Compared together, this represents an increase of 305% for the premium 500 Mbps tier over the 75 Mbps tier.

Just comparing these components is not sufficient to characterize the cost impact on additional network capacity because it only includes network equipment but omits the network upgrades required to augment capacity on HFC networks. The latter refers to activities such as node splitting, fibre reinforcement and augmentation, and service group size reductions that are taken by cable operators to add broadband capacity to their networks beyond just deploying more equipment. Given this, when the broadband capacity tariffs noted above are combined with the 9.9 Euro retail access tariff which should reflect any necessary network upgrades to accommodate broadband usage growth, there is a difference of only 39% in the price between the 75 Mbps and 500 Mbps tiers. As will be discussed further below, this proposed tariff structure can lead to inefficient market outcomes given the different customer usage levels typically associated with broadband service.

2. *Underestimation of YoY growth trends.* The BIPT/Axon model significantly understates the growth in broadband usage, given historical norms. The model assumes a 15% growth rate in consumption (35% for 1 Gbps service) even though most service providers worldwide report an empirical 25-45% YoY growth in usage.[32] In addition, Telenet's own experience is of usage growth of 25-35% per annum. By understating broadband growth rates, the

[31] See Telenet's Official Response to the BIPT Consultation dated 15-02-2019 (No. 35, page 20); the BIPT wholesale cost numbers from the original chart were replaced with model results for wholesale services, i.e., the sum of cable wholesale access costs (Worksheet '12B OUT SERV LRIC+ COSTS', Cell1014) and the wholesale bitstream costs (Worksheet '12B OUT SERV LRIC+ COSTS', Cells1029:1035) at the wholesale service tiers.

[32] See, for example, "CISCO Visual Networking Index, Forecast and Trends, 2017-2022", White Paper. Accessed at: https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-741490.html#_Toc532256804, or
Craig Labovitz, "Internet Traffic 2009-2019", presentation to NANOG 76, Washington DC, June -12, slide 5. Accessed at https://pc.nanog.org/static/published/meetings/NANOG76/1972/20190610_Labovitz_Internet_Traffic_2009-2019_v1.pdf

access line tariff for broadband services will underestimate the correct amount of broadband capacity needed to provide broadband services.

In addition to these issues, we also found that the dimensioning of the network equipment is static: parameters for the dimensioning vary neither with usage nor with access speeds. For example, the average number of TAPs per optical node do not vary with usage (See '2C INP GEO NW CHARAC'; Cells D132:134). The average number of TAPs per optical node should also vary with access speed, as it becomes harder to reliably achieve higher access speeds (even with a constant usage) without reducing the number of customers per fibre nodes.

Sensitivity analysis

Given these concerns, we conducted a sensitivity analysis of model results due to variations in usage growth rates to further investigate the extent to which these issues might have a material impact on model results. The outcomes of this sensitivity analysis are shown below in Figure 2 and Figure 3 for retail and wholesale broadband service tariffs, respectively.

FIGURE A 2 MODEL RESULTS FOR RETAIL SERVICES

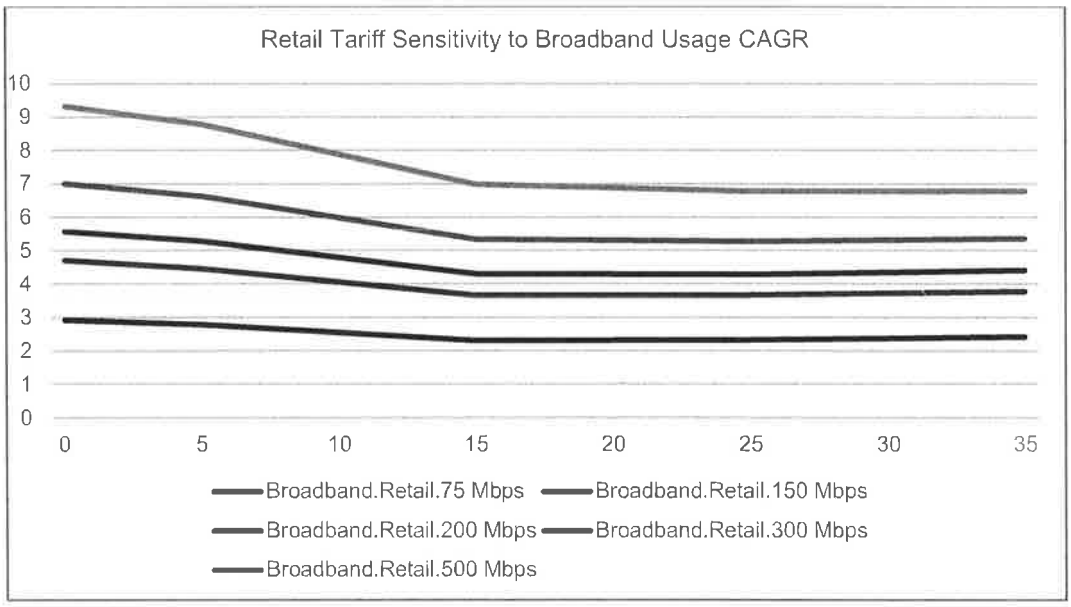
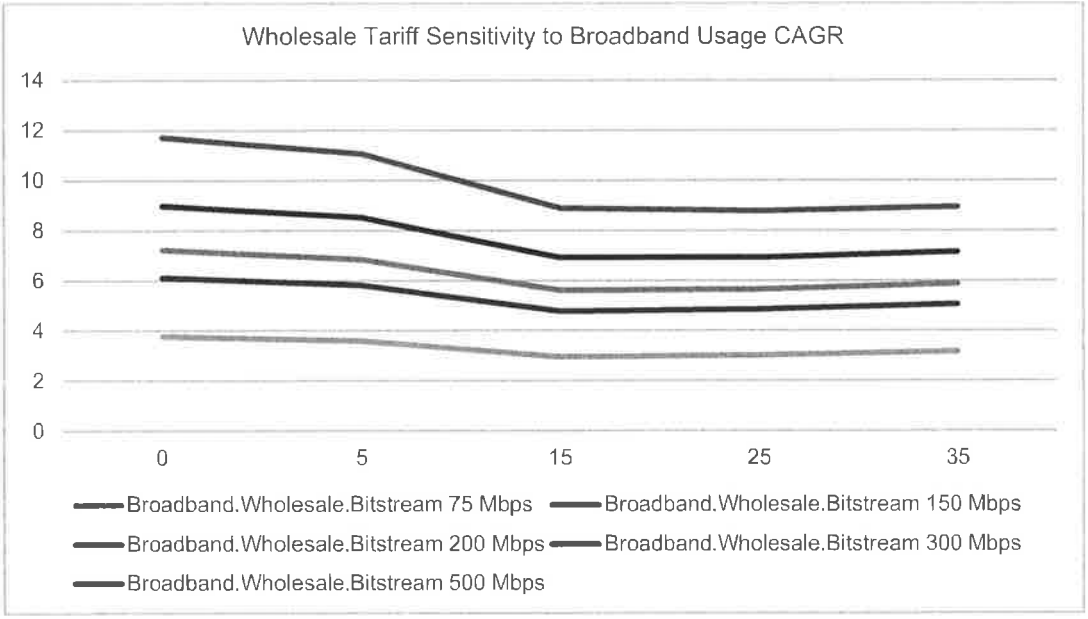


FIGURE A 3 MODEL RESULTS FOR WHOLESALE SERVICES



These results clearly show a surprising result: the tariff for broadband capacity actually is declining as the broadband usage rate increases from 0% up to 35% YoY. For example, when we run the model (version 9.1) as is, without any changes to any of the input assumptions, the model calculates **8.89 Euro** as the service cost of Broadband Wholesale Bitstream service @ 500Mbps in the year of 2020 (*See Worksheet '12B OUT SERV LRIC+ UNIT COST', Cell M1035*). When we change the YoY growth trend figures from 15% to 25%[33], the wholesale service cost @ 500Mbps in Year 2020 changes from **8.89 Euro** to **8.78 Euro**. As discussed above, the direction of this change is counter-intuitive and not consistent with industry norms. Higher capacity usage should result in higher per user costs.

Also note that when we eliminate any YoY growth in broadband usage (setting all tiers to 0%),[34] according to the model, the wholesale service cost @ 500Mbps in Year 2020 increases to **8.98 Euro**. When we change the YoY growth trend figures from 0% to 5%,[35] the wholesale service cost @ 500Mbps in Year 2020 changes from **8.98 Euro** to **8.51 Euro**. Again, the direction of this change is counterintuitive.

These examples suggest that version 9.1 of the BIPT/Axon model is generating lower tariffs for higher annual growth rates in subscriber usage, for reasons which we cannot explain. With this potentially incorrect formulation, BIPT is injecting an artificially flat tariff gradient for broadband speeds that creates unwise market incentives (whether intended or unintended) against facilities-based NGA deployment, as we will discuss in the next section.

[33] Changes were made on Worksheet '2A INP NW', in Cells L74:98, and Cells M74:M82, and M85:M93
[34] Changes were made on Worksheet '2A INP NW', in Cells L74:98, and Cells M74:M98
[35] Changes were made on Worksheet '2A INP NW', in Cells L74:98, and Cells M74:M98

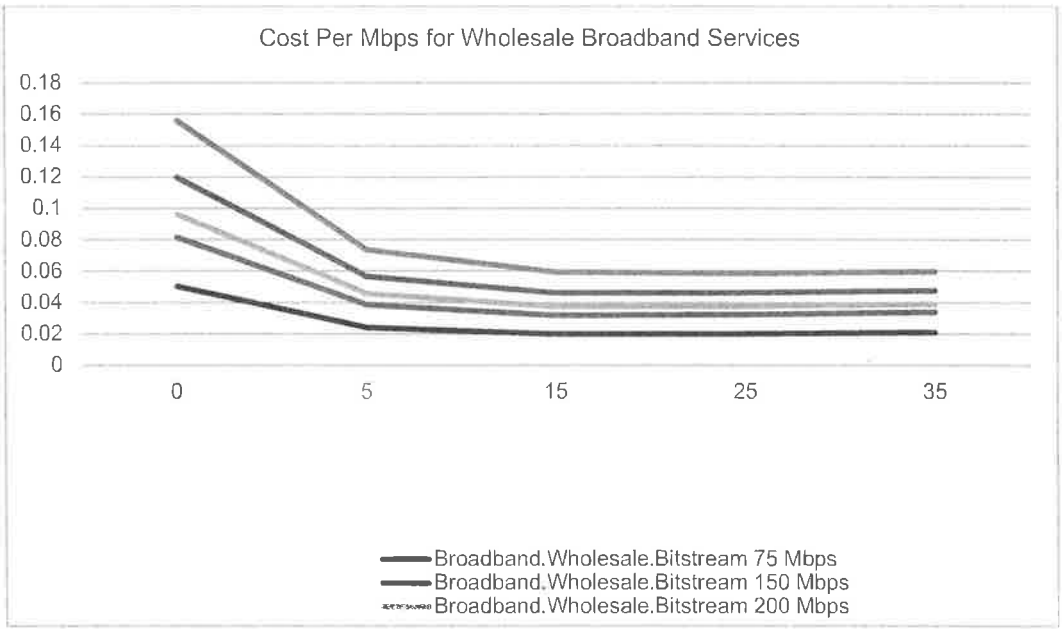
Ramifications

The analysis above has significant ramifications for the ongoing regulatory discussion regarding the implementation of the BIPT/Axon cost model.

First, we reiterate the need for better model documentation in order to evaluate the structure and cost estimates of the BIPT cost model. Better documentation can have two significant benefits: 1) consistent with the transparency principle, it allows affected parties, outside experts and the public to better comment upon the methodology employed to generate cost estimates, and 2) the process of generating documentation itself is a critical step in quality control to identify potential problems in the model before it is moved to final release version.

Second, the current structure of tariffs as generated by the model is not consistent with real-world deployment experience regarding the forward-looking costs to increase broadband capacity over HFC networks. One reason for this is the structure of the model itself, which does not appear to sufficiently consider the impact that high growth rates have on network costs both in the form of network equipment and network upgrades. A second reason is that the model appears to underestimate the YoY growth rates. Additional redevelopment of the model is clearly needed for this key aspect of future costs incurred in the evolution of HFC networks over time to meet surging demand for broadband speed and capacity. Based on our sensitivity analysis, the model is projecting economies of scale in the cost per broadband user as speed and peak hour usage increases. One explanation for this tariff structure could be a mistaken notion that the decreasing cost per Mbps that is present in residential broadband services should also be present in the cost per household metric. Figure 4 shows the cost per Mbps (in Euros) versus the different broadband growth rates for wholesale broadband services at different speeds as generated by the BIPT/Axon cost model.

FIGURE A 4 COST PER MBPS FOR WHOLESALE BROADBAND SERVICES



The graph clearly shows that the cost per Mbps decreases both as the speed of the tier and usage growth rates increase. But these same scale economies are not present for the network costs using a cost per broadband user metric. In fact, like the consumption of groceries in a house, the total cost of broadband consumption will increase as the household consumes more bandwidth during the peak hour. This is because the dedicated bandwidth for each household increases with the speed of the broadband service, which means a larger, dedicated portion of the network equipment, and hence its costs, must be allocated to higher-speed users. In this sense, the BIPT cost model fails to recognize how the broadband services market actually operates. Customers usually wait for their Internet service provider to increase their speed of service due to competitive pressures rather than paying more to upgrade to a higher bandwidth service. This is the reason that the price per Mbps has consistently declined year on year as consumers generally prefer the bandwidth "push" model instead of a bandwidth "pull" model (based upon service upgrades at higher prices due to the increased capacity of the service relative to the current average speed benchmarks in the market). The proposed tariff structure correctly reflects the decline in price per Mbps but does not recognize properly the increase in network costs associated with additional usage.

It is important that the BIPT/Axon model is adjusted to reflect this reality in the cost of broadband deployment over HFC networks (or any other technology for that matter). To meet the growth in broadband usage projected for the future, cable operators will have to invest significantly to increase the capacity of broadband infrastructure. Over the next decade, this will include major efforts to reclaim spectrum used for analogue TV and radio for broadband, migration of the TV services to IP video, extension of fibre closer to the end user, and future migration to EuroDOCSIS 3.1 and 4.0. All of these significant steps are not likely built into the current model.

Third, if no modifications are made to the BIPT/Axon model, then the structure of tariffs described will likely have significant ramifications on how the wholesale market will operate. From a consumer perspective the relatively flat price gradient of tariffs for different service speeds will likely result in lighter users, representing a majority of the users, shouldering a heavier burden for cost recovery than the relatively small number of heavy users at high speeds. Instead, an approach that recovers costs better aligned with the level of peak hour consumption would be more efficient. From a wholesale service provider perspective, the low tariffs for high-speed service tiers will tip the "build versus buy" calculus in favour of buying access rather than building their own NGA facilities.

Fourth, this discussion has focused upon BIPT/Axon cost model estimates associated mainly with downstream consumption and speeds. There is an equally challenging set of issues and costs related to upstream consumption about which we did not evaluate the cost model. Capacity management and planning for upstream transport may be the primary driver for new network investments as the market moves to symmetric services that is the focus of the latest DOCSIS 4.0 version. Usage growth in the upstream may be the primary driver for additional investment in the network, requiring substantial investment in new types of equipment throughout the network to support a new split between upstream and downstream transport which are not reflected in the current version of the model. Similar to the downstream, additional documentation and evaluation of the costs of upstream transport is necessary.

A3 THE USE OF ECONOMIC DEPRECIATION

The underlying cause of the problems identified in the previous section is the use of economic depreciation within the model. In addition, the problem of a static network design, as described in section A1, compounds the difficulties with economic depreciation.

In the economic depreciation methodology, the cost of the asset is matched to the forecast use of the asset over the long term. Consequently, there is relatively little depreciation in years where asset utilisation is low, and high depreciation when an asset is fully, or almost fully, utilised. It follows that this methodology is highly sensitive to demand forecasts in the model, in addition to assumptions on asset prices and technology evolution. In a world of perfect information this makes for good pricing decisions, but demand forecasts are notoriously unreliable and make a dreadful basis on which to determine costs or set prices. While short-term demand evolution can be forecast with a degree of confidence based on recently observed trends in the market, the same cannot be said for long-term demand and, consequently, the proposed wholesale tariffs are highly dependent on the emergence of long-term demand that is speculative at best. This generic issue is especially problematic in the case of the BIPT/Axon cost model because of the very long forecast period (up to 50 years) and the high levels of year-on-year growth in usage that are expected in broadband services. In these circumstances the use of economic depreciation is totally unsuitable, because speculative assumptions about demand many years in the future affects costs and prices today.

It is for this reason that Telenet proposes to utilise an alternative depreciation methodology: a tilted annuity. In a flat annuity the cost recovery for an asset, i.e. the depreciation plus the return on capital, will be constant for every period of the asset's life. However, in the event that equipment prices are expected to change over the life of the asset, a 'tilt' can be applied to the depreciation formula to ensure that the cost recovery in any period is equal to the cost recovery that a new entrant would seek having purchased a new asset. By applying this tilt, the methodology mimics the outcome of economic depreciation, but by not linking depreciation to the projected use of the asset, tilted annuity outcomes are not influenced by speculative and subjective long-term demand assumptions.

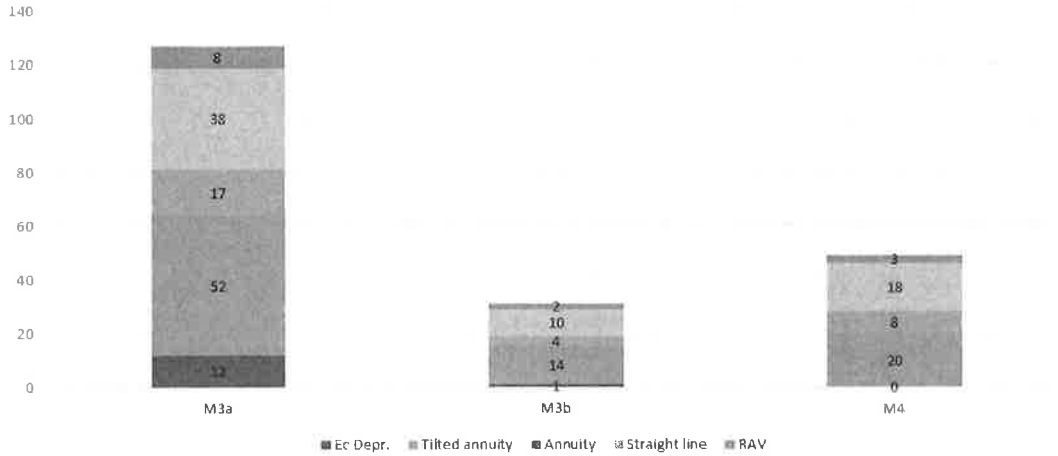
By using a tilted annuity, BIPT would also ensure alignment with current practice in the EU and closely linked countries as can be seen in the BEREC Report Regulatory Accounting in Practice 2018[36]. As noted by BEREC on annualisation methods used to determine cost-oriented rates in markets susceptible to ex ante regulation:

> *"The most frequently used approach is the tilted annuity. Standard annuity and straight line follow. Economic depreciation is used mainly in termination markets."*

The following Figure has been derived from Figure 17 in the BEREC report and shows only the annualisation methods used in the more relevant access markets 3a, 3b and 4.

[36] See Figure 17 on page 26.

FIGURE A 5 ANNUALISATION METHODS BY MARKET



Source: BEREC Report Regulatory Accounting in Practice 2018

The Figure shows that:

1. In market 3a (wholesale local access provided at a fixed location) out of a total sample of 127, in 52 markets a tilted annuity was used while economic depreciation was used in 12 markets
2. In market 3b (wholesale central access provided at a fixed location for mass-market products) out of a total sample of 31, in 14 markets tilted annuity was used while in 1 market economic depreciation was used
3. In market 4 (wholesale high-quality access provided at a fixed location) out of a total sample of 49, in 20 markets tilted annuity was used while economic depreciation was not used.

It is evident that the tilted annuity approach is far superior to economic depreciation and much more widely adopted in the EU. BIPT should use this approach.

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Nicolai van Gorp is owner/founder of e-Conomics, a multidisciplinary network of academics and consultants with a focus on competition, strategy and business models in telecom and digital markets. Nicolai an experienced competition economist with many years of experience in European telecom regulation. Since 2014 he expanded his attention to digital markets and platform-based business models. He consulted several Dutch and Belgian operators in relation to regulatory challenges and he was project manager and leading expert in multiple influential EU studies shaping the Regulatory Framework and the Digital Agenda[37]. He is guest lecturer on the topic of digital business models at Nyenrode University and at the National Academy for Finance and Economics in the Netherlands. Nicolai published in several journals, including *Telecommunications Policy*, *Info*, *Intermedia* and the Dutch *Journal of Political Economy* (*Tijdschrift voor Politieke Economy*) and is regularly asked as an anonymous reviewer for *Digital Policy, Regulation and Governance* en *Communications of the ACM* (Association for Computing Machinery).

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David Rogerson is a Director of Incyte Consulting and is a leading advisor to regulators and operators with 30 years of consultancy experience at Logica, Ovum and Incyte. David is a specialist in regulatory cost modelling for telecommunications networks. He constructed the earliest regulatory cost models in the European Union (1989) and the UK (1990-91), and since then he has developed and critiqued models in over 25 countries, covering fixed networks (circuit-switched and IP networks), mobile (2G, 3G and 4G) and access to facilities such as fibre, ducts, towers and submarine cables. Recent projects have included the construction of cost models for fixed and mobile services in Palestine and for submarine cable access in Samoa. David has also been working with ComReg on its cost-based remedies for wholesale access products, and with a leading network operator in Bulgaria to critique the Axon cost models that have been developed for the European Commission in order to harmonise regulation across the EU. David has a Bachelor of Art (1st class honours) and a Master of Arts degree in Mathematics from Cambridge University in the UK.

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Dr. David Reed is currently a Scholar in Residence at the University of Colorado Boulder. Prior to joining CU, was the Executive Vice President and Chief Strategy Officer at Cable Television Laboratories (CableLabs) where he led large R&D projects covering a wide range of technologies relevant to the cable industry such as application platforms, business services, voice-over-IP, and broadband delivery systems. Dr. Reed also has been a Telecommunications Policy Analyst in the Office of Plans and Policy at the Federal Communications Commission where he worked on cable-telco competition, personal communications services (PCS), and spectrum auction policies. Dr. Reed has authored a book on residential fibre optic networks, and is a widely published author in

[37] such as: Steps towards a truly Internal Market for e-communications (DG Connect, 2011), Study on the future relevant market subject to ex-ante regulation (for DG Connect 2013), Patents and standards: a modern framework for IPR-based standardisation (for DG Enterprise, 2014), Challenges for competition policy in the digitalised economy (for the European Parliament, 2015), Future trends and business models in communications services and their regulatory impact (DG Connect, 2016), and the Impact Assessment for the Review of the Framework for electronic communications (DG Connect, 2016).

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