An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

Regulated Wholesale Fixed Access Charges

Review of the Access Network Model

Response to Consultation and Final Decision

Reference:	ComReg 21/130
Decision No:	D11/21
Version:	Final
Date:	17/12/2021

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1 Introduction

1.1 ComReg is the national regulatory authority ('**NRA**') for the electronic communications sector in Ireland. As the NRA, ComReg is tasked under the European regulatory framework for electronic communications with reviewing electronic communications markets and, where ComReg finds that relevant markets are not competitive, with imposing obligations on operators found to have significant market power ('**SMP**'). Obligations which ComReg may impose include, among others, price controls, including obligations to charge cost-oriented prices.

1.2 ComReg's objectives, in line with Section 12 of the Communications Regulation Act 2002, as amended (the '**Act**'), and Regulation 16 of the Framework Regulations[1], are to promote competition, to encourage efficient investment and innovation, contribute to the development of the internal market and to promote the interests of end-users by encouraging access to the internet at a reasonable cost to end-users. According to Regulation 16 of the Framework Regulations, in pursuing its objectives, ComReg must apply objective, transparent, non-discriminatory and proportionate regulatory principles by, among other things, promoting regulatory predictability, promoting efficient investment, and taking due account of the variety of conditions relating to competition and consumers that exist in various geographic areas.

1.3 In ComReg Decision D10/18[2] (the '**2018 WLA/WCA Market Review Decision**'), ComReg found that Eircom had SMP in the market for Wholesale Local Access ('**WLA**') and in the market for Wholesale Central Access at a fixed location for mass market products in regional areas (the '**Regional WCA Market**') and imposed obligations of cost-orientation in respect of the following services:

(a) In the WLA Market, obligations of cost orientation were imposed on Local Loop Unbundling ('**LLU**'), Sub Loop Unbundling ('**SLU**'), Line Share, access to Civil Engineering Infrastructure ('**CEI**') and Dark Fibre, as well as the provision of Fibre to the Cabinet/EVDSL-based Virtual Unbundled Access ('**FTTC-based VUA'**);

(b) In the Regional WCA Market, obligations of cost-orientation were imposed in respect of Current Generation Standalone Broadband ('**CG SABB**'), both Current Generation Bitstream Managed Backhaul and Bitstream IP (together, '**CG Bitstream'**), and FTTC-based Bitstream.

[1] European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011) (the '**Framework Regulations**').

[2] ComReg Document No 18/94, Decision D10/18: Market Review: Wholesale Local Access (WLA) provided at a Fixed Location, Wholesale Central Access (WCA) provided at a Fixed Location for Mass Market Products. Response to Consultation and Decision; dated 19 November 2018.

1.4 For the purpose of setting cost-oriented prices for LLU, SLU, Line Share, CEI, Dark Fibre and CG SABB, ComReg relied on ComReg Decision D03/16[3] (the '**2016 Access Pricing Decision**') which had determined cost-oriented prices by developing a copper access network cost model known as the Revised Copper Access Model ('**Revised CAM**'). The cost-orientation obligation for FTTC-based services was further specified in ComReg Decision D11/18[4] (the '**2018 Pricing Decision**'). The 2018 Pricing Decision relied on two cost models, the Next Generation Access Cost Model ('**NGA Cost Model**') and the Next Generation Network Core Model ('**NGN Core Model**'), which used network cost inputs from the Revised CAM to derive cost-oriented prices for FTTC-based prices.

1.5 The European Commission ('**EC**') in response to ComReg's notification of the draft measures contained in the 2018 WLA/WCA Market Review Decision,[5] called on ComReg to revisit the access prices derived from the Revised CAM and at least update the results of the Revised CAM with more recent data and notify the resulting prices without undue delay. The EC in response to ComReg's notification of ComReg Decision D10/20[6] on the Weighted Average Cost of Capital ('**WACC**') (the '**2020 WACC Decision**'), also stated that having regard to the significant decrease in the WACC, ComReg should update relevant pricing decisions as soon as possible, to ensure that prices in the Irish wholesale markets reflect current market conditions.

1.6 This response to consultation and decision document (the '**Decision**') follows on from ComReg Document No. 20/101[7] (the '**Consultation**'). The Consultation was issued on 22 October 2020 and following an extension,[8] closed on 8 January 2021. Responses to the Consultation were received from the following five Respondents:

(a) Alternative Operators in the Communications Market ('**ALTO**');

(b) BT Communications Ireland Limited ('**BT**');

(c) Eircom Limited ('**Eircom**')[9];

[3] ComReg Document No. 16/39, ComReg Decision D03/16: Pricing of Eir's Wholesale Fixed Access Services: Response to Consultation Document 16/39 and Final Decision, dated 18 May 2016.

[4] ComReg Document No. 18/95, ComReg Decision D11/18: Pricing of wholesale broadband services, Wholesale Local Access (WLA) market and the Wholesale Central Access (WCA) markets, Response to Consultation Document 17/26 and Final Decision, dated 19 November 2018.

[5] Please see Appendix 2 of the 2018 WLA/WCA Market Review Decision.

[6] ComReg Document No 20/96, ComReg Decision D10/20: Review of Weighted Average Cost of Capital (WACC) – Response to Consultation and Final Decision, dated 14 October 2020.

[7] ComReg Document No 20/101: Regulated Wholesale Fixed Access Charges, Review of the Access Network Model and Specification of the Price Control for Public Switched Telephone Network Wholesale Line Rental – Consultation and Draft Decision, dated 22 October 2020.

[8] ComReg Document No 20/113: Information Notice ComReg grants extension to consultation period for Consultation Document 20/101, dated 20 November 2020.

[9] Eircom's submission included a report prepared by Berkeley Research Group ('**BRG**') on Eircom's behalf.

(d) Sky Ireland Limited ('**Sky**')[10]; and

(e) Vodafone Ireland Limited ('**Vodafone**')[11].

1.7 ComReg has taken full account of all the responses in reaching its final decision. In discussing the submissions below, ComReg has not outlined each and every point of each submission, but has set out the main points raised and, where appropriate, responded to those points. Non-confidential versions of the submissions have been published with this Decision on ComReg's website in ComReg Document No. 21/130s].

1.8 On 22 October 2021, ComReg, in accordance with its relevant statutory obligations, notified the EC, BEREC, and other NRAs of the measures it proposed to take. On 19 November 2021 the EC issued its response to ComReg (the '**EC Comments Letter**'), as further set out in Annex: 5. In adopting its final decision, ComReg has taken utmost account of the EC Comments Letter. ComReg's consideration of the EC's comments is set out in Annex: 6 and elsewhere throughout this Decision, as appropriate.

1.9 This Decision finalises the review and update of the Revised CAM. The updated model is referred to as the Access Network Model ('**ANM**'). Given the changes that have occurred in the Irish market since the Revised CAM was finalised, such as full fibre services having been launched, and plans on further rollout of fibre services having become clearer, ComReg found that a refresh of the data for the Revised CAM was not sufficient; instead a more comprehensive exercise was undertaken through the development of the ANM, as detailed in the Consultation and further explained in this Decision.

1.10 Unlike the Revised CAM which looks at the costs associated with the provision of a copper-based access network only, the ANM includes the relevant costs associated with both copper and fibre-based access services. The ANM also models costs in different footprints by reference to relevant regulated geographic markets (by reference to exchanges) and/or premises within exchanges according to the technical solutions that are adopted to serve the premises.

1.11 This Decision sets out ComReg's final decision on updated prices derived from the ANM for LLU, SLU, Line Share, Dark Fibre and CG SABB. Revised prices for CEI (ducts and poles) were proposed in a separate draft decision document ('**Draft CEI Pricing Decision**') notified to the EC on the same date that ComReg notified the

[10] Sky's submission included a report prepared by Analysys Mason on Sky's behalf.

[11] Vodafone's submission included a report prepared by Frontier Economics on Vodafone's behalf.

draft ANM decision[12]. However, in its Comments Letter of 19 November 2021[13] (the '**EC CEI Comments Letter**') the EC raised serious doubts regarding the Draft CEI Pricing Decision under the procedure set out in Article 33 of the European Electronic Communications Code ('**EECC**').[14] Having considered the EC CEI Comments Letter, on 10 December 2021, ComReg notified the EC of its withdrawal of the notification of the Draft CEI Pricing Decision.[15] ComReg accordingly will not at this time adopt the proposed Draft CEI Pricing Decision notified to the EC or the pole and duct access prices proposed in that draft decision.

1.12 ComReg notes that the Draft CEI Decision notified to the EC included the details of two of the six modules which together make the ANM, namely the Pole Access Module ('**PAM**') and the Duct Access Module ('**DAM**'), and only a brief description of those two modules was included in the ANM's Consultation as the description was in the 2020 CEI Pricing Consultation.[16] As ComReg is not at this time adopting a separate decision dealing with CEI prices, ComReg deals in this Decision with the modelling of the pole and duct costs in the PAM and DAM that inform the cost stacks for the services in scope for this Decision. This Decision accordingly sets out ComReg's proposals in respect of the modelling of pole and duct costs made in the 2020 CEI Pricing Consultation and considers Respondents' Submissions[17] to same, together with ComReg's assessment of these and ComReg's final position.

1.13 Although FTTC-based prices are not derived directly from the Revised CAM or ANM, following the adoption by ComReg of the 2020 WACC Decision, ComReg has assessed the combined impact of updating the inputs issued from the ANM into the NGA Cost Model and NGN Core Model and the latest WACC rate[18] on FTTC prices. As proposed in the Consultation, in light of the material impact on FTTC prices and following further review in this Decision, ComReg has decided to amend the prices set in the 2018 Pricing Decision. To ensure consistent build/buy signals, ComReg

[12] Please see ComReg Document 21/108, Information Notice, dated 22 October 2021 - https://www.comreg.ie/publication/information-notice-pricing-of-eircoms-civil-engineering-infrastructure.

[13] https://www.comreg.ie/publication/update-on-pricing-of-eircoms-civil-engineering-infrastructure-procedure-under-article-33-of-eecc

[14] Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (recast), OJEU [2018] L321/36.

[15] See ComReg Information Notice 21/117, dated 10 December 2021 - https://www.comreg.ie/publication/information-notice-update-on-pricing-of-eircoms-civil-engineering-infrastructure

[16] See Section 5.8 of the 2020 CEI Pricing Consultation for a detailed description of the PAM/DAM modules.

[17] The 2020 CEI Pricing Consultation closed on 18 November 2020, and Submissions were received from eight Respondents: ALTO; BT; Eircom including a report from BRG; NBI including a report from its advisors, Frontier Economics; Siro Limited ('Siro'); Sky; Virgin Media Ireland Limited ('Virgin Media'); and Vodafone. These Submissions, have as relevant been referenced in Section 5 of this Decision.

[18] The latest WACC refers to the fixed line WACC rate in effect at the time of this Decision – see ComReg Document 21/68 Information Notice, dated 29 June 2021 - https://www.comreg.ie/publication/weighted-average-cost-of-capital-first-annual-update

has also decided to update the prices for CG Bitstream modelled through the NGN Core Model with the new WACC rate.

1.14 This Decision also considers the submissions received to the call for input on the market impact of the existing Fibre to the Home ('**FTTH**') connection and migration prices, and further assesses the level of costs associated with FTTH connections and migrations. ComReg has decided that no further action in relation to FTTH connection and migration prices is warranted prior to the market review analysis of the WLA and Regional WCA Markets to be completed on or before 17 November 2023.

1.15 The Consultation also made proposals in respect of the specification of the price control for Public Switched Telephone Network Wholesale Line Rental ('**PSTN-WLR**') envisaged in ComReg's 2020 FACO Market Review Consultation where ComReg more generally proposed to continue regulating the provision of fixed access and call origination services by Eircom in a Regional FACO Market, as defined in the 2020 FACO Consultation. However, following notification by ComReg of its Draft 2021 FACO Market Review Decision to the EC on 18 June 2021[19], and the EC's letter of 16 July 2021[20] expressing serious doubts with ComReg's Draft Decision, by decision of 20 September 2021[21], the EC required that ComReg withdraw its Draft Decision. In the absence of a new decision by ComReg in respect of the FACO market review, this Decision does not address the matters raised in the Consultation, including in particular Section 4 and Section 6.2 of the Consultation, in respect of the adoption of a new price control for PSTN-WLR. Respondents' submissions in respect of these matters will be considered and responded to at a later stage following ComReg's consideration of the EC's decision of 20 September 2021 and ComReg's decision as regards the market review for FACO.

1.16 In the meantime, and for the avoidance of doubt, the price control for PSTN-WLR, including the supplemental charges for POTS based FTTC services, as set out in ComReg Decision D05/15,[22] (the '**2015 FACO Decision**') as amended by the 2016 Access Pricing Decision and the 2018 Pricing Decision, remain in place. This is more particularly described in Section 4 of this Decision.

1.17 However, and for the avoidance of doubt, the ANM does model and cost PSTN-WLR as an access service.

[19] See ComReg IN 21/65 - https://www.comreg.ie/publication/information-notice-rfts-faco-draft-decision

[20] See ComReg IN 21/76 - https://www.comreg.ie/publication/market-review-update-rfts-and-faco

[21] See ComReg IN 21/94 - https://www.comreg.ie/publication-download/market-review-further-update-retail-fixed-telephony-services-and-wholesale-fixed-access-and-call-origination-2

[22] ComReg Document No. 15/82, ComReg Decision D05/15: Market Review Wholesale Fixed Voice Call Origination and Transit Markets: Response to Consultation Document 15/82 and Final Decision, dated 24 July 2015.

1.18 In making these decisions, ComReg has also had regard to the two recommendations published by the EC in relation to NGA networks, namely the recommendation on access to NGA published in 2010[23] (the '**2010 EC Recommendation**') and the recommendation on non-discrimination and costing methodologies published in 2013[24] (the '**2013 EC Recommendation**').

1.19 The aim of the 2010 EC Recommendation is to develop the single market by promoting investment, competition and innovation in the market for broadband services. The 2010 EC Recommendation looks at, amongst other things, common principles for the pricing of NGA services, pricing of access to CEI, as well as access to fibre (FTTH), criteria for setting a risk premium (considering the investment risk associated with NGA services (FTTC and FTTH)), while also assessing equivalence of access to CEI of the SMP operator for the purposes of rolling out NGA networks.

1.20 The 2013 EC Recommendation, among other things, looks at the way copper and NGA wholesale access prices should be set and where cost orientation is appropriate.

1.21 In relying on the Framework and Access Regulations, ComReg has had regard to the provisions of the European Electronic Communications Code (the '**EECC**' or the '**Code**') (Directive EU 2018/1972).

1.22 ComReg was assisted by its expert consultants Cartesian ('**Cartesian**') with regards to the review and development of the ANM and its finalisation following the Consultation[25]. Cartesian has prepared a non-confidential version of the ANM, as well as associated documentation, which is available upon request to ComReg[26] to interested parties affected by this Decision. Non-confidential versions of the NGA Cost Model and NGN Core Model are also available upon request to ComReg[27] to interested parties. TERA Consultants ('**TERA**') assisted with the assessment of the impact of the ANM cost inputs review and updated WACC on FTTC prices and CG Bitstream prices,[28] as further discussed in this Decision. Consultants Dot Econ Limited ('**Dot Econ**') assisted with an assessment of ComReg's approach to the

[23] European Commission's Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (2010/572/EU).
[24] European Commission's Recommendation of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (2013/466/EU).
[25] For information purposes only, the final Cartesian ANM Specification Document is available upon request to ComReg. The views expressed by Cartesian are not necessarily the views of ComReg.
[26] See footnote 79.
[27] Ibid footnote 26.
[28] TERA Consultants prepared a note on its view of the responses. The note has been published with this Decision (see Annex 3).

recovery of Eircom's common costs.[29] Europe Economics assisted with the assessment of comment 3.1 from the EC's Comments Letter.[30]

1.23 This document is structured as follows:

(a) Section 2: provides a summary of the main conclusions;

(b) Section 3: outlines the price controls relevant to the ANM review;

(c) Section 4: outlines the existing price control for PSTN-WLR as per the 2016 Access Pricing Decision, and for the supplemental charge for POTS based FTTC services;

(d) Section 5: sets out the cost modelling approach for the wholesale access network services in the ANM;

(e) Section 6: sets out the pricing approach for the wholesale access network services;

(f) Section 7: sets out the wholesale access network prices from the ANM and the revised prices following the updates to the NGA Cost Model and NGN Core Model;

(g) Section 8: sets out the response to the Call for Input on FTTH connections; and

(h) Section 9: sets out other regulatory measures.

[29] Dot Econ's note has been published with this Decision (see Annex 2).
[30] Europe Economics' note has been published with this Decision (see Annex 9).

2 Executive summary

2.1 In ComReg Decision D10/18 (the '**2018 WLA/WCA Market Review Decision**'), ComReg found that Eircom had SMP in the market for Wholesale Local Access ('**WLA**') and in the market for Wholesale Central Access at a fixed location for mass market products in regional areas (the '**Regional WCA Market**') and imposed obligations of cost-orientation in respect of the following services:

(a) In the WLA Market, obligations of cost orientation were imposed on Local Loop Unbundling ('**LLU**'), Sub Loop Unbundling ('**SLU**'), Line Share, access to Civil Engineering Infrastructure ('**CEI**') and Dark Fibre, as well as the provision of Fibre to the Cabinet/EVDSL-based Virtual Unbundled Access ('**FTTC-based VUA**');

(b) In the Regional WCA Market, obligations of cost-orientation were imposed in respect of Current Generation Bitstream products including Current Generation Standalone Broadband ('**CG SABB**'), both Bitstream Managed Backhaul and Bitstream IP (together, '**CG Bitstream**') and FTTC-based Bitstream.

(c) For setting cost-oriented prices for LLU, SLU, Line Share, CEI, Dark Fibre and CG SABB, ComReg relied on ComReg Decision D03/16 (the '**2016 Access Pricing Decision**') which had determined cost-oriented prices by developing a copper access network cost model known as the Revised Copper Access Model ('**Revised CAM**'). The cost-orientation obligation for FTTC-based services was further specified in ComReg Decision D11/18 (the '**2018 Pricing Decision**'). The 2018 Pricing Decision relied on two cost models, the NGA Cost Model and the NGN Core Model, which used network cost inputs from the Revised CAM to derive cost-oriented prices for FTTC-based prices.

2.2 In response to ComReg's notification of the draft measures contained in the 2018 WLA/WCA Market Review Decision, the European Commission ('**EC**') called on ComReg to revisit the access prices derived from the Revised CAM and at least update the results of the Revised CAM with more recent data, and notify the resulting prices without undue delay. The EC also responded to ComReg's notification of ComReg Decision D10/20 on the Weighted Average Cost of Capital ('**WACC**') (the '**2020 WACC Decision**'), stating that having regard to the significant decrease in the WACC, ComReg should update relevant pricing decisions as soon as possible, to ensure that prices in the Irish wholesale markets reflect current market conditions. This Decision seeks to address these responses from the EC.

2.3 This Decision finalises the Access Network Model ('**ANM**'), replacing the Revised CAM. Given the changes that have occurred in the Irish market since the Revised CAM was finalised, such as the commercial launch of full fibre services and the rollout of full fibre in the context of the National Broadband Plan, ComReg found that a refresh of the data for the Revised CAM was insufficient; instead a more

comprehensive exercise was undertaken through the development of the ANM.

2.4 Unlike the Revised CAM, which looks at the costs associated with the provision of a copper-based access network only, the ANM includes the relevant costs associated with both copper and fibre-based access services, relying on updated data from operators (for example, actual and expected demand volumes, and financial data including the latest relevant WACC rate[31] based on the 2020 WACC Decision). The ANM also models costs according to geographic footprints including by reference to the active lines in exchanges making up regulated markets (e.g., the Regional WCA Market) as well as by reference to the technical solutions used by operators to pass premises.

2.5 In that regard, the ANM borrows from the Department of the Environment Climate and Communications' ('**DECC**') mapping exercise for the National Broadband Plan ('**NBP**') to generate "commercial" and "non-commercial" footprints. The non-commercial footprint is based on those premises that are included in the DECC's area known as the intervention area for the NBP ('**NBP IA**'), to be served by NBI's Major Infrastructure Programme ('**NBI's MIP**') under the contract between the Minister for Communications and NBI. The commercial areas include the Rural Commercial Area comprising the premises served by Eircom's rural 300K[32] FTTH network and the Urban Commercial Area footprint which include those premises which can be served with a viable FTTC based service (including EVDSL).

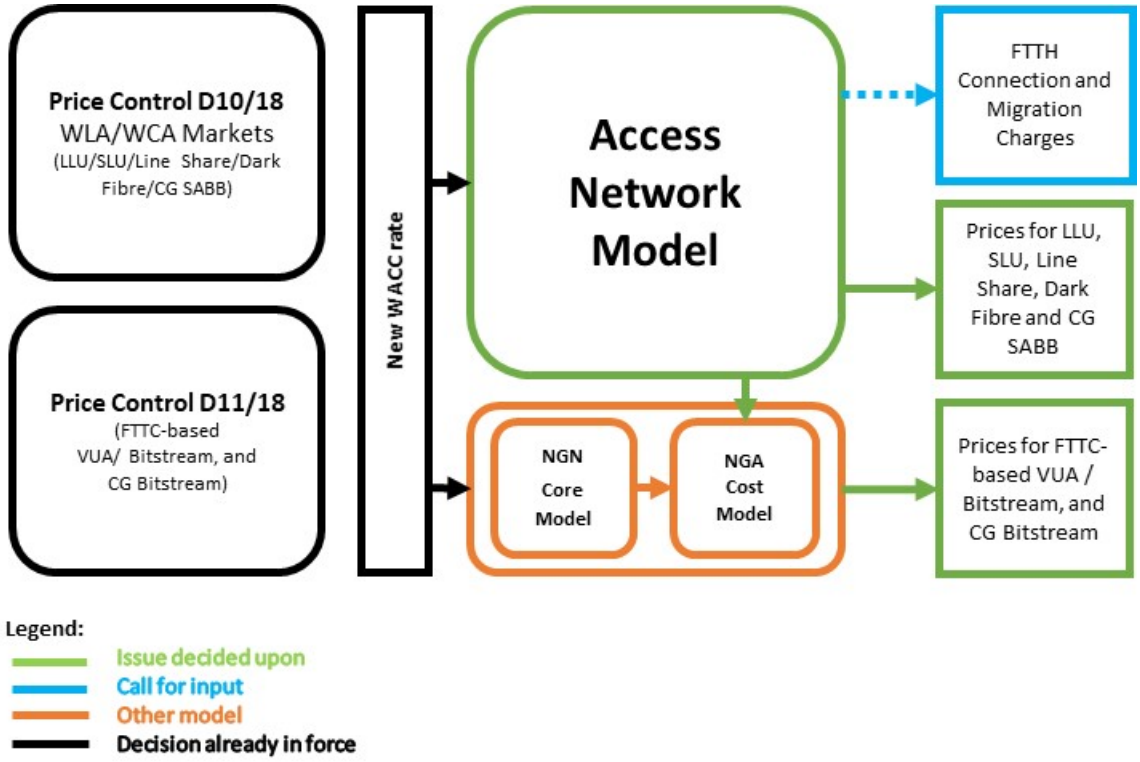
2.6 Finally, ComReg is concluding the call for input from stakeholders in relation to FTTH connection/migration costs having sought views on the appropriate factors that interested parties considered to be of relevance. The responses provided and ComReg's assessment of them does not indicate that there are any missing relevant factors, nor is there sufficient justification for intervening presently in relation to the policy surrounding FTTH connection and migration charges.

2.7 Figure 1 provides a high-level overview of how this Decision fits together, i.e., the relevant price controls that determine the costing methodology which are then applied in the models to ultimately output the monthly charges for the wholesale access services.

[31] The latest relevant fixed line WACC rate is as detailed in ComReg Document 21/68 Information Notice, dated 29 June 2021.

[32] The ANM model reflects that Eircom rolled out high speed broadband to 340,000 premises rather than the 300,000 originally agreed to by Eircom with DECC.

Figure 1 Diagram of the scope of this Decision



Price controls under the WLA/WCA Market Review Decision – updated ANM prices

2.8 ComReg did not consult in the Consultation on the form of the price control obligations that are in place in respect of the wholesale access services in the 2018 WLA/WCA Market Review Decision or the 2018 Pricing Decision. The nature of these controls remains unchanged. Rather, the Consultation proposed updates to applicable prices for LLU, SLU, Line Share, Dark Fibre and CG SABB with prices derived from the ANM, based on the existing cost-orientation obligations. This includes the use of a combination of TD-HCA and BU-LRAIC+ cost methodologies according to whether the assets concerned are reusable or not for the purpose of providing NGA services, considering the costs reflecting the likely geographic footprint of the services concerned. In this Decision, these principles are maintained and implemented in the ANM as follows:

(a) For LLU, costs are calculated by reference to the Urban Commercial Area footprint rather than the 'distance dependent approach' used in the Revised CAM, this better aligns with the line base that is capable of supporting a viable FTTC based service;

(b) For SLU, the same footprint as LLU – the Urban Commercial Area – is used to derive SLU prices to better align with the line base that is capable of supporting a viable FTTC based service. The national base used in the Revised CAM is no longer appropriate as SLU will not be used for the purpose of the NBP IA;

(c) For Dark Fibre, the price is derived from the costs of the access network supporting leased line services better reflecting potential demand for this service, removing the geographical cost differentiation between Dublin and Provincial areas used previously;

(d) For Line Share, which is determined on an incremental cost basis, no adjustments were necessary to the modelling approach; and

(e) For CG SABB, prices are set with reference to the exchanges that comprise the Regional WCA Market (including the updated list of exchanges following the 2021 WCA Market Mid-term Assessment Decision[33]).

2.9 ComReg has also decided that the prices for LLU and SLU are maximum prices (as is already the case for Line Share and Dark Fibre), rather than price points, in order to avoid requiring Eircom to increase prices for LLU and SLU, given the small number of lines concerned.

2.10 The prices set out in this Decision, as presented in Tables 1 to 4 below, apply from 1 March 2022.

2.11 Table 1 sets out the maximum monthly rental prices for LLU, SLU, Line Share and Dark Fibre services in the WLA Market.

Table 1 Monthly prices for LLU, SLU, Line Share and Dark Fibre

Service	€		
	1 March 2022 - 30 June 2022	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024
LLU*	12.79	13.14	14.05
SLU	10.03	10.18	10.68
Line Share**	0.62	0.62	0.62
Dark Fibre	0.12	0.12	0.11

* Excludes monthly fault repair and monthly connection/provision – see Section 7 for more details.

** Excludes monthly fault repair and monthly connection/provisioning charges – see Section 7 for more details.

2.12 Table 2 sets out the monthly rental prices for CG SABB in the Regional WCA Market.

[33] ComReg Document No. 21/120, ComReg Decision D10/21: Mid-term Assessment Regional Wholesale Central Access (WCA) Market, Re-application of geographic assessment criteria set out in ComReg Decision D10/18, Response to Consultation and Final Decision, dated 25 November 2021.

Table 2 Monthly prices for CG SABB in the Regional WCA Market

Service	CG SABB - €		
	1 March 2022 - 30 June 2022	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024
CG SABB: National handover			
Per Port*	25.37	25.33	25.69
Per Mbps	0.44	0.37	0.33
CG SABB: Regional handover			
Per Port*	23.78	23.73	24.10
Per Mbps	0.19	0.16	0.14

* Includes rental costs, fault repair costs and connection / provisioning costs

FTTC Prices and CG Bitstream Prices

2.13 As explained in the Consultation, FTTC-based prices are not derived directly from the Revised CAM[34] or ANM but from ANM outputs, in particular LLU and SLU, which are important cost inputs for FTTC-based services. FTTC-based prices are calculated based on the NGA Cost Model and the NGN Core Model using ANM outputs.

2.14 In the 2018 Pricing Decision, ComReg set prices for FTTC-based services until June 2022. In the 2020 WACC Decision, mindful that regulatory certainty, including the predictability of pricing, is an important aspect of creating the right environment for all operators to make investment decisions, ComReg reiterated the principle, for the purpose of implementing the new WACC rate, that where prices have been set for a price control period, ComReg will not intervene during that price control period unless circumstances are materially different from those envisaged at the time of the pricing decision or exceptional circumstances have otherwise arisen. Applying that principle, and having signalled at the time of the 2018 Pricing Decision that prices may be amended following its decision on WACC, ComReg in this Decision confirms its intention as outlined in the Consultation to amend the prices set in the 2018 Pricing Decision in light of the material combined impact of updated ANM inputs and the new fixed line WACC rate. Hence, Table 3 below shows the updated prices as set out by this Decision. As noted, the updated prices reflect the combined impact of the ANM and WACC rate. In the case of FTTC based VUA, the change in the WACC rate is a very significant contributor to the reduction in the prices set by the 2018 Pricing Decision (in the remainder of the price control period), with a similar impact on FTTC based Bitstream final prices.

2.15 ComReg also proposed in the Consultation to review CG Bitstream prices in order to ensure that build/buy signals for CG Bitstream and FTTC services remain consistent.

[34] The price of FTTC based services includes as relevant the following output prices from the Revised CAM - LLU, SLU, and NGA links.

Prices for CG Bitstream are set using the NGN Core Model based on BU-LRAIC+ costs which should allow Eircom to recover its costs while incentivising OAOs to migrate to fibre-based services where efficient to do so. ComReg has decided that it is important to maintain the consistency of build/buy signals and has therefore updated the monthly prices. Table 4 sets out the monthly prices for CG Bitstream (BMB and Bitstream IP) services in the Regional WCA Market. CG Bitstream services are only available as add-ons to PSTN-WLR and the prices below are in addition to the price for wholesale line rental.

Table 3 Monthly prices for FTTC based services

Service	FTTC based services - €		
	1 March 2022 - 30 June 2022	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024
FTTC based VUA[35] *	18.36	18.54	19.12
FTTC based Bitstream: National Handover			
Per Port *	22.19	22.48	23.24
Per Mbps	0.29	0.27	0.27
FTTC based Bitstream: Regional Handover			
Per Port *	20.20	20.42	21.08
Per Mbps	0.11	0.11	0.11
Assumed 90/10 mix for Regional / National Handover			
Per Port *	20.40	20.63	21.29
Per Mbps	0.13	0.12	0.12

* Including fault repair and provisioning costs

[35] This includes the average costs for Remote VUA, Local VUA and EVDSL.

Table 4 Monthly prices for CG Bitstream in the Regional WCA Market

Service[36]	CG Bitstream - €		
	1 March 2022 - 30 June 2022	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024
BMB: National Handover			
Per Port *	7.94	8.12	8.36
Per Mbps	0.44	0.37	0.33
BMB: Regional Handover			
Per Port *	6.41	6.47	6.58
Per Mbps	0.19	0.16	0.14
Bitstream IP: National Handover			
Bitstream IP[37] *	8.28	8.41	8.61
Bitstream IP: Regional Handover			
Bitstream IP[38] *	6.55	6.59	6.69

* Including line share and fault repair

PSTN-WLR Prices and Supplemental charge for POTS based FTTC

2.16 The Consultation made proposals in respect of the specification of the price control for PSTN-WLR envisaged in ComReg's 2021 FACO Market Review Consultation where ComReg more generally proposed to continue regulating the provision of fixed access and call origination services by Eircom in a Regional FACO Market, as defined in the 2020 FACO Consultation.

2.17 However, following notification by ComReg of its Draft 2021 FACO Market Review Decision to the EC on 19 July 2021, and the EC's letter of 20 July 2021 expressing serious doubts with ComReg's Draft Decision, by decision of 20 September 2021, the EC required that ComReg withdraw its Draft Decision. In the absence of a new decision by ComReg in respect of the FACO market review, this Decision does not address the matters raised in the Consultation, including in particular Section 4 and Section 6.2 of the Consultation, in respect of the adoption of a new price control for PSTN-WLR. Respondents' submissions in respect of these matters will be considered and responded to at a later stage following ComReg's consideration of

[36] These costs / prices are incremental to the cost / price for PSTN-WLR / POTS.
[37] Bitstream IP prices are based on a combination of the costs of the port and traffic usage. The prices listed here are based on a weighted average assumption of traffic use by the Bitstream IP user for each year.
[38] Ibid footnote 37.

the EC's decision of 20 September 2021 and ComReg's decision as regards the market review for FACO.

2.18 In the meantime, and for the avoidance of doubt, the price control for PSTN-WLR, including the supplemental charges for POTS based FTTC services, as set out in 2015 FACO Decision, as amended by the 2016 Access Pricing Decision and the 2018 Pricing Decision, remains in place. This is more particularly described in Section 4 of this Decision. However, and for the avoidance of doubt, the ANM does model and cost PSTN-WLR as an access service.

Eircom's Proposals

2.19 Eircom in its submission proposed a series of 'voluntary commitments' to continue to apply existing prices (with some increases) instead of updating them in accordance with the costs calculated using the ANM (and the NGA Cost Model and the NGN Core Model). Eircom considered that the price continuity proposed would encourage migration to FTTH. ComReg maintains the view that there is currently no statutory basis on which to accept commitments as the EECC has not yet been transposed in Irish law. Nevertheless, having considered Eircom's proposals in detail, ComReg is of the view that a continuation of the existing prices for services such as FTTC VUA, FTTC Bitstream and CG Bitstream based on a WACC rate applicable at the time the prices were set (i.e. 8.18%) rather than the latest fixed line WACC (now set at 5.56%), is neither fair nor reasonable to Access Seekers purchasing these services. Further detail on ComReg's consideration of Eircom's proposal can be found in Section 6.2.

CEI Costs

2.20 In terms of the CEI (pole and duct access) costs which form part of the cost stack informing the prices for FTTC based VUA, LLU and SLU, ComReg has adopted for the purpose of this Decision the approach outlined in the Consultation and proposed in more detail in the 2020 CEI Consultation and the 2021 Draft CEI Pricing Decision notified to the EC at the same time as this Decision. Under this approach, the total cost annuities for poles and ducts recovered from the suite of ANM access services, other than Pole and Duct access, correspond to the quantum of costs in each footprint net of the projected revenues from NBI's MIP.

2.21 Following the EC's Comments Letter of 19 November 2021[39] in respect of the 2021 Draft CEI Pricing Decision (the '**EC CEI Comments Letter**') raising serious doubts regarding that notification in accordance with the procedure set out in Article 33 of the European Electronic Communications Code ('**EECC**'),[40] having considered the EC CEI Comments Letter, on 10 December 2021, ComReg notified the EC of its

[39] https://www.comreg.ie/publication/update-on-pricing-of-eircoms-civil-engineering-infrastructure-procedure-under-article-33-of-eecc

[40] Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (recast), OJEU [2018] L321/36.

withdrawal of the notification of the Draft CEI Pricing Decision.[41] ComReg accordingly will not at this time adopt the proposed Draft CEI Pricing Decision notified to the EC or the pole and duct access prices proposed in that draft decision.

2.22 ComReg, however, notes that the basis on which costs allocated for recovery by NBI's MIP are netted off the quantum of costs (LRAIC+, or LRAIC in the NBP IA and LRIC in the Commercial Area) does not have a material impact on the prices for FTTC based VUA, LLU and SLU. This is largely because FTTC based VUA, LLU and SLU prices are set with reference to the Urban Commercial Area footprint while the costs expected to be recovered from NBI's MIP are expected to be concentrated in the NBP IA and the Rural Commercial Area footprint, with any impact on cost recovery limited to the amount of contribution to common costs expected of NBI's MIP. While this does not apply to CG SABB, CG SABB has relatively low and declining volumes, with the result that further updates to its prices to take into account the cost contributions to CEI costs from NBI's MIP are not expected to have a material impact on the overall cost recovery for Eircom. The results of a sensitivity on FTTC based VUA prices (similar results would be expected for FTTC Bitstream, given that this service, as per the approach adopted in D11/18, is based on FTTC VUA as the anchor service with a small supplement for backhaul) of setting NBI's cost contributions on the basis of a LRAIC+ approach are presented in Table 5.

Table 5 Sensitivity Analysis

Service	FTTC based VUA - €		
	1 March 2022 - 30 June 2022	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024
Decision	18.36	18.54	19.12
Sensitivity	18.31	18.45	19.00
Change	-0.05	-0.08	-0.12
Change %	-0.3%	-0.4%	-0.6%
Change in common costs	-0.7M	-1.0M	-1.5M

[41] Ibid footnote 15.

3 Relevant Price Controls

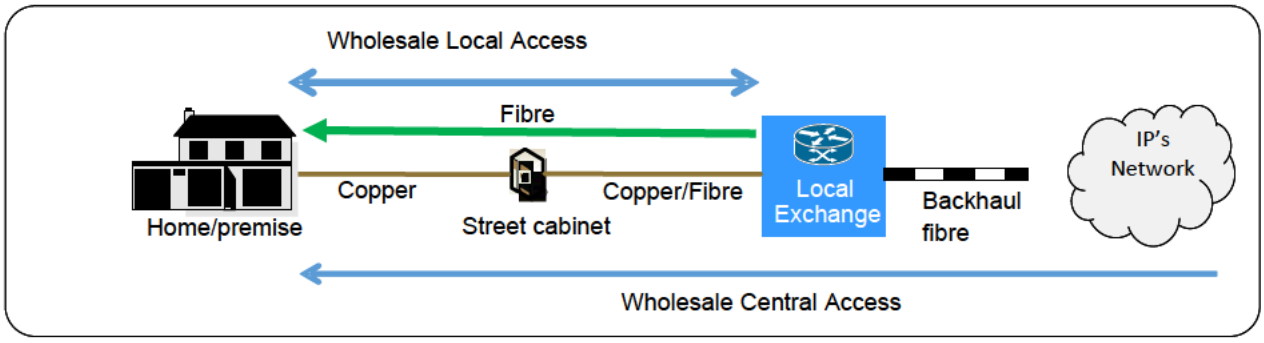
3.1 Overview

3.1 This section provides a brief technical overview of the wholesale fixed access services in the Wholesale Local Access Market (the '**WLA Market**'), and the Regional Wholesale Central Access Market (the '**Regional WCA Market**') which are impacted by this Decision. This section also provides an overview of the existing regulatory price controls for services in the WLA and Regional WCA Markets first implemented under the 2016 Access Pricing Decision using the Revised CAM and reimposed under the 2018 WLA/WCA Market Review Decision; it then discusses relevant market developments including the NBP and their impact on the price controls.

3.2 Wholesale fixed network access services

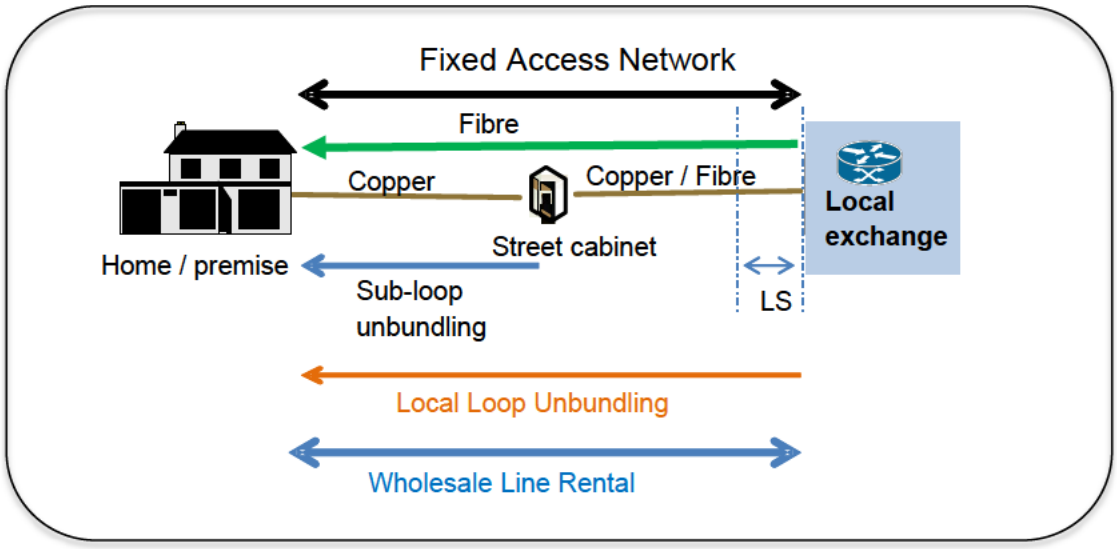
3.2 The WLA Market comprises the connection between the local exchange and the end-user's premises, while the WCA Market relates to the full connection from an Other Authorised Operators ('**OAOs**') network to the end user's premises. This is illustrated in Figure 2.

Figure 2 Provision of WLA and WCA services



3.3 Figure 3 illustrates the extent of Eircom's access services across the fixed access network.

Figure 3 Provision of access services across the fixed access network



3.4 The wholesale fixed access services, which are the subject of the ANM review, are described below under the relevant regulated markets.

3.5 The following WLA services are subject to the ANM review:

(a) Local Loop Unbundling ('**LLU**') is a service where an OAO rents access to the local copper loop (that part of the access network between the exchange and the end user);

(b) Sub-Loop Unbundling ('**SLU**') allows access to the sub-loop (namely, the portion of the local copper loop between the street cabinet and the end user, excluding the portion of the local loop between the exchange and street cabinet), and including the provision of access to a tie cable or other connection and appropriate handover for the purposes of making use of the sub-loop from an adjacent cabinet;

(c) Line Share or Shared Access to the local loop is a service allowing OAOs access to the high frequency capacity of the copper line;

(d) Dark fibre is optical fibre that is currently installed in the local access network but is not in use. Dark Fibre means 'unlit' Eircom fibre in Eircom's access network;

(e) Fibre to the Cabinet based Virtual Unbundled Access ('**FTTC based VUA**')[42] allows an OAO to gain virtual control of the access path to the customer premises, with a level of control similar to that obtained with LLU. Eircom offers a number of variants, including Local VUA, Remote VUA and Exchange launched VUA. In Local VUA, the Main Distribution Frame ('**MDF**') and/or Optical Distribution Frame ('**ODF**') and the customer traffic handover point (serving the aggregation node)

[42] ComReg uses the term "FTTC based VUA" to cover all Very-high-bit-rate Digital Subscriber Line ('**VDSL**') services, which includes Exchange Launched Very-high-bit-rate Digital Subscriber Line ('**EVDSL**'). The same applies to "FTTC based Bitstream".

are co-located in the same Exchange. In Remote VUA, the MDF (and/or the ODF) and the customer traffic handover point (serving the aggregation node) are not co-located in the same Exchange. For both Local and Remote VUA, the active equipment that is required to provide VUA is predominantly housed in the street cabinet. In Exchange launched VUA, the active equipment that is required to provide VUA is housed in an Eircom Exchange building or equivalent;

(f) FTTH (connection) means a connection to an access network architecture where fibre optic cable is used to connect the End User premises to the ODF in an Exchange.

3.6 Civil Engineering Infrastructure ('**CEI**'), such as ducts and poles, is part of the cost stack of fixed access network services, in particular LLU and SLU, which are then modelled as inputs to FTTC based VUA.

3.7 The Regional WCA Market includes the following services:

(a) Current generation standalone broadband ('**CG SABB**') is a broadband service offered or provided exclusively over Eircom's copper access network infrastructure and its associated facilities (excluding Exchange launched Bitstream) and delivered without a Public Switched Telephone Network ('**PSTN**') voice telephony service; and

(b) FTTC based Bitstream is a broadband service offered or provided over Eircom's FTTC and it also includes 'Exchange launched Bitstream'.[43]

3.8 The Fixed Access and Call Origination ('**FACO**') market comprises two key components, wholesale line rental ('**WLR**'), and fixed voice call origination. WLR is the fixed access part that is rented by an operator; this copper access line is rented from Eircom and provides the physical connection from an end-user's premises to the public telephone network. Single-billing WLR ('**SB-WLR**') is a term used to denote that end-users availing of this service can make and receive calls at their premises. SB-WLR is comprised of two elements – the first being the fixed access part, which is an infrastructure element that physically enables calls to be conveyed from a premise to the exchange for onward transfer, in other words the fixed copper access component (e.g. WLR), and the other part is related to the ability to make calls over this infrastructure. WLR can be provided over four fixed network access infrastructures: PSTN, ISDN[44] BRA[45], ISDN FRA[46], and ISDN PRA.[47] As explained at paragraphs 1.15 and 1.16, as a result of the EC's decision of 20 September 2021 requiring ComReg to withdraw its 2021 FACO Market Review Draft Decision, this

[43] See footnote 42.
[44] Integrated Services Digital Network ('**ISDN**').
[45] Basic Rate Access.
[46] Fractional Rate Access.
[47] Primary Rate Access.

Decision does not consider the price control obligation for PSTN-WLR proposed in the Consultation. For the avoidance of doubt the existing price control for the PSTN-WLR as detailed in the 2016 Access Pricing Decision remains in place. In addition, the ANM continues to model PSTN-WLR as an access service including for the purpose of service demand, modelling the impact transition from copper to fibre, and allocating costs between services.

3.3 Existing regulatory price controls: WLA and WCA Markets

3.9 Prices for LLU, SLU, Line Share, CEI, Dark Fibre, CG SABB and FTTC-based VUA and Bitstream are regulated under the 2018 WLA/WCA Market Review Decision which imposed a cost orientation obligation for each of these services. The 2018 WLA/WCA Market Review Decision maintained the form of price controls that had been determined in the 2016 Access Pricing Decision for LLU, SLU, Line Share, CEI and Dark Fibre, including costing methodology and price levels. The price controls in the 2016 Access Pricing Decision were implemented using the Revised CAM.

3.10 Prices for FTTC based VUA and FTTC based Bitstream services, including EVDSL, and POTS based FTTC were further specified in the 2018 Pricing Decision. These prices were set using the NGA Cost Model and the NGN Core Model which in turn rely on costs for LLU and SLU derived from the Revised CAM.

3.3.1 Approach to cost orientation obligations in the WLA and WCA Markets in the existing price controls

3.11 The cost orientation price control obligations in the WLA and WCA markets are designed to address Eircom's ability to apply excessive prices and/or margin squeezes as a result of its SMP. The obligations are further designed in this context to give appropriate build/buy signals to operators while ensuring adequate cost recovery for Eircom.

3.12 In the Consultation which led to the adoption of the 2018 WLA/WCA Market Review Decision,[48] in imposing an obligation of cost-orientation for LLU, SLU, Line Share, CEI and Dark Fibre, ComReg noted that the local loop remains a bottleneck in terms of developing effective competition and that LLU, SLU and Line Share are important cost inputs for the wholesale services bought by OAOs as they try to compete with Eircom. ComReg considered for this reason that it was important that operators and investors have certainty regarding the prices of these services, and that the prices incentivise efficient behaviour. This is particularly relevant in the WLA Market where

[48] See in particular paragraph 8.587 in ComReg Document 16/96 (the '2016 WLA/WCA Market Review Consultation'). Please also see the justification for the current costing methodology for LLU and SLU in Chapter 6 (Section 6.2 on LLU and Section 6.3 on SLU) of the 2016 Access Pricing Decision. Paragraph 8.616 of the 2016 WLA/WCA Market Review Consultation and paragraph 7.1229 of the 2018 WLA/WCA Market Review Decision relied on the justification provided in the 2016 Access Pricing Decision for maintaining the current costing methodologies for LLU and SLU.

products have a high capital cost component that requires a significant level of investment recovered over a prolonged period. It is also particularly relevant where there is a possibility of efficient network deployment by alternative operators.

3.13 In addition, to preventing excessive prices for wholesale inputs, a cost orientation obligation, ensures that wholesale prices correctly inform the investment decisions of both the incumbent and competitors thereby promoting efficient infrastructure investment and encouraging operators to climb the ladder of investment.

3.14 In order to ensure that adequate cost recovery and efficient build/buy signals were built into cost-oriented prices, ComReg used a combination of cost standards, cost methodologies and geographic cost bases.

3.15 In the 2016 Access Pricing Decision, ComReg took the view, with regards to the cost standard, that an approach based on long-run average incremental cost plus a contribution towards common corporate costs ('**LRAIC+**') was appropriate to encourage efficient investment decisions in the access network while ensuring that the access network operator is capable of recovering (but not over-recovering) all of its costs. Current costs were selected as most appropriate to encourage efficient investment and innovation in new and enhanced infrastructures, particularly in more competitive areas.

3.16 By contrast, ComReg found that, where there was no prospect of a competitor replicating the service in question, historical cost accounting was more appropriate. Historical cost accounting ('**HCA**'), based on the SMP operator's [Eircom's] costs, reduces the chance of over-recovery of costs (subject to ensuring that fully depreciated assets that are still in use are accounted for in line with the 2013 EC Recommendation). ComReg also took the view that a top down ('**TD**') model was to be used where the asset(s) concerned are non-replicable and where the objective is to ensure that there is no over-or-under recovery of costs, while a bottom up ('**BU**') model should be used where there is a need to send a build-or-buy signal where assets may be replicated by alternative operators and the objective is to encourage the deployment of alternative infrastructure. A scorched node approach was applied in the Revised CAM so that the geographic coordinates of Eircom's MDFs and cabinets were used.

3.17 For the purpose of applying each of the two methodologies (TD-HCA or BU-LRAIC+), ComReg identified three main groups of assets:

(a) Reusable passive civil engineering assets i.e., assets which can be reused for NGA including ducts, trenches, chambers and poles (referred to as '**Reusable Assets**');

(b) Other passive local loop assets and non-reusable civil engineering assets: i.e., assets including the network termination unit ('**NTU**'), final drops, D-side cables,

E-side cables, cabinets, and main distribution frames ('**MDFs**') as well as passive civil engineering assets which cannot be reused for NGA ('**Non-reusable Assets**'); and

(c) 'Active assets', i.e., electronic equipment such as voice and digital subscriber line ('**DSL**') cards and backhaul used for PSTN-WLR and SABB services.

3.18 In respect of Reusable Assets, no infrastructure-based competition was expected to develop; cost recovery was the key objective. Reusable Assets were accordingly valued based on the net book value ('**NBV**') in Eircom's accounts and depreciated over the remaining lifetime of the asset by applying a tilted annuity formula using the asset price index as a parameter (the '**Eircom Indexed RAB approach**'). For Non-reusable Assets (or replicable assets) where the objective is to encourage the deployment of alternative infrastructure, a BU-LRAIC+ methodology was applied. A BU-LRAIC+ methodology was also chosen for active assets (line card, backhaul, etc.) and applied with an adjustment for economies of scale. Where a proportion of assets was found to be Non-Reusable, such as ducts and poles, a combination of Eircom's Indexed RAB and BU-LRAIC+ costs was used, and reuse and replacement factors determined.

3.19 This approach was used in the 2016 Access Pricing Decision and re-imposed in the 2018 WLA/WCA Market Review Decision for each of LLU, SLU, CEI and Dark Fibre and the BU-LRAIC+ and TD-HCA methodologies were used to value the respective Non-Reusable and Reusable Assets.[49] It was also applied to CG-SABB and FTTC prices, as set out below.

3.3.2 LLU[50] and SLU

3.20 In order that LLU prices send the appropriate 'build or buy' signals, an additional assumption was made in the 2016 Access Pricing Decision. Namely, only lines in urban areas that are likely to be unbundled and - therefore - only costs of those lines should be taken into account. The appropriate footprint was defined as a set of 237 exchanges known as the Modified Larger Exchange Area or 'Modified LEA', and excluded the cost of LLU lines longer than 5km.

3.21 As for SLU, lines greater than 1.5km were found unlikely to be technically capable of supporting the required standard of broadband services and were therefore excluded from the SLU price calculation. A national cost base was otherwise used on the basis

[49] In particular, pole access prices were based on Eircom's Indexed RAB on the basis of 92% reuse of Eircom's pole base (absent NGA roll-out) using projected TD costs, and 8% for pole replacement due to NGA deployment based on BU-LRAIC+ costs. Duct access prices were based on Eircom's Indexed RAB on the basis of 95% reuse of Eircom's duct base (absent NGA roll-out) using projected TD costs, and 5% for duct replacement due to NGA deployment based on BU-LRAIC+ costs. Also, to note ComReg treat active assets as non-reusable.

[50] Eircom's ARO refers to Unbundled Local Metallic Path (ULMP) rather than LLU. However, LLU is used here for consistency with previous ComReg decisions and the ANM documentation.

that this was necessary to send the appropriate 'build or buy' signals given that at that time it was considered that there could be a demand for SLU lines nationally including in rural areas in order to deliver broadband services as part of the NBP. This was also considered to be appropriate given that SLU was a direct input into Eircom's regulated FTTC VUA price (relevant for urban areas).

3.3.3 Dark Fibre[51]

3.22 Under the 2018 WLA/WCA Market Review Decision, Eircom is required to provide access to Dark Fibre only in those circumstances where access to CEI (ducts and poles) is not available for economic, technical or capacity reasons and where Dark Fibre is available. The regulated price for Dark Fibre also only applies in those circumstances. In the 2016 Access Pricing Decision, the price is set by metre of fibre in respect of two geographic areas, Dublin, and Provincial areas, and designed to recover the cost of access to fibre optic cables deployed mainly in urban areas including a share of the cost of duct and pole access used to support the deployment of those fibre cables based on the relative capacity of that infrastructure (mainly ducts) occupied by the fibre cables. BU-LRAIC+ methodology is used to calculate costs for Non-reusable assets, and TD HCA for Reusable assets.

3.3.4 Line Share

3.23 Cost-oriented prices for Line Share reflect the fact that Line Share is only available where a narrowband service is availed of in respect of the same line, and that this other service allows Eircom to recover the costs of the local copper loop. Accordingly, the price for Line Share in the 2016 Access Pricing Decision was determined by reference to the incremental costs of providing the Line Share service, that is, the incremental cost (excluding fault clearance) of supporting broadband services on a line that is also used to support narrowband services, which was found to be limited to (a) the remedial costs associated with pair gain removal[52]; and (b) carrier administration and billing costs.

3.3.5 CG SABB

3.24 The 2018 WLA/WCA Market Review Decision re-imposed an obligation of cost orientation for CG SABB in respect of the Regional WCA Market. The cost-oriented price in the 2016 Access Pricing Decision was derived from TD-HCA costing methodology except for Active Assets where the costs are calculated using a BU-

[51] Please see Section 8.4 of the 2016 Access Pricing Decision, paragraph 8.616 of the 2016 WLA/WCA Market Review Consultation and paragraph 7.1229 of the 2018 WLA/WCA Market Review Decision.

[52] Pair gain systems (sometimes called carrier systems) can transmit multiple narrowband signals over the same copper loop to allow the sharing of that copper loop between end users for narrowband voice. However, pair gain systems have to be removed if the line is to be used for broadband and the costs of removal were treated as capital cost.

LRAIC+ methodology. This allows Eircom to recover its costs while incentivising OAOs to migrate to fibre-based services where efficient to do so.[53]

3.4 Impact of the ANM Review on existing price controls

3.25 ComReg did not propose in the Consultation to review or amend its approach to the costing of LLU, SLU or Dark Fibre, which will continue to be set on the basis of a combination of BU-LRAIC+ and TD-HCA. ComReg does not consider that a review of the methodologies underpinning the pricing for LLU and SLU is required in the context of the update of the Revised CAM and development of the ANM. Although take-up of these services as at Quarter 2 ('**Q2**') 2021 is circa 1,600 LLU, and 0 for SLU,[54] and expected to remain low, these services are essential components of the 'cost stack' for FTTC-based services and, accordingly, the underlying rationale for the choice of methodologies continues to apply for LLU and SLU. ComReg also did not propose in the Consultation to review the costing approach to Line Share. ComReg notes that take-up of this service is expected to remain low and as at Q2 2021 is circa 13,000 subscribers.[55]

3.26 ComReg, however, did propose in the Consultation to make a number of changes to the existing price controls (considered in Sections 3.4.1 to 3.4.3 below) with the view to reflecting in the prices the market and regulatory developments presented below.

3.4.1 National Broadband Plan

3.27 The National Broadband Plan ('**NBP**') is the Government's initiative to provide high speed broadband in geographic areas not served by commercial operators. The NBP aims to ensure that all citizens across Ireland have access to high speed broadband infrastructure capable of supporting download speeds of at least 30 Mbps by 2026 and is the responsibility of the Department of the Environment Climate and Communications ('**DECC**'). The High Speed Broadband Map published by DECC shows in amber colour the NBP Intervention Area ('**NBP IA**'), that is, the target areas for State intervention under the National Broadband Plan, representing circa 537,000 premises (delivery points), and in blue, the areas where commercial providers are either currently delivering or have plans to deliver high speed broadband services.[56]

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[53] Please see 2016 WLA/WCA Market Review Consultation, Section 13, paragraph 13.300; and 2018 WLA/WCA Market Review Decision, Section 12, paragraph 12.353(d). The justification for the current methodology for CG SABB is set out in Chapter 7 of the 2016 Access Pricing Decision, specifically paragraph 7.21.

[54] https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/

[55] https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/

[56] The Map, published at https://www.gov.ie/en/publication/5634d-national-broadband-plan-map/ is updated on a quarterly basis. The initial Map published in 2017 showed in additional to the Intervention Area in amber, two commercial areas: in light blue, those commercial areas where Eircom had committed to deliver high speed broadband (see paragraph 3.30) and in blue, other commercial areas here commercial operators are delivering or have indicated plans to deliver high speed broadband services.

3.28 To deliver on the National Broadband Plan, DECC awarded to, and signed with, National Broadband Ireland ('**NBI**') the NBP contract[57] whereby NBI has committed to a seven-year plan to deploy its fibre network. NBI is expected to make extensive use of Eircom's CEI (ducts and poles) and to become the main provider of wholesale fibre broadband services in the NBP IA after it completes the full deployment of its network. NBI will require widespread and long-term access to Eircom's CEI.

3.29 In the NBP IA customers on Eircom's existing legacy copper network are likely to transition to NBI's fibre network as it becomes available but in the interim, Eircom will continue to supply copper-based services to customers in areas where NBI has yet to deploy and offer its fibre broadband services.

3.30 Separately, Eircom has rolled out FTTH passing over 300,000 premises based on its commitment agreement of April 2017 with DECC and Eircom.[58] Furthermore, in 2018, Eircom announced plans to rollout FTTH to circa 1.4m urban addresses over the next five years[59] (an April 2021 update on that rollout indicated that 380,000 premises in 79 towns can now access FTTH[60]). The FTTH network has been overlaid on Eircom's existing network of duct and poles and it is anticipated that customers on copper-based services will migrate to fibre.

3.31 There are accordingly three distinct footprints which may be identified, as follows:

(a) Urban Commercial, corresponding to the footprint where commercial operators are delivering or have indicated plans to deliver high speed broadband services. It is also the footprint where Eircom has deployed FTTC. This footprint covers approximately 1.5m premises (as at its inception in April 2017). This footprint is referred to throughout this document as the '**Urban Commercial Area**';

(b) Rural Commercial, corresponding to the footprint comprised of the premises passed by Eircom (or to be passed by Eircom) as a result of Eircom's commitment to deliver high speed broadband on a commercial basis under its 2017 Agreement[61] with the Minister in relation to the National Broadband Plan –

[57] Agreement in respect of the National Broadband Intervention Project between the Minister for Communications, Climate Action and Environment and NBI Infrastructure Designated Activity Company, November 2019, published (redacted) at https://www.gov.ie/en/publication/16717-national-broadband-plan-contract/.

[58] Agreement between the Minister for Communications, Climate Action and Environment and Eircom Limited in relation to National Broadband Plan – commercial deployment commitment. https://www.dccae.ie/documents/Commitment%20Agreement.pdf

[59] https://www.eir.ie/pressroom/eir-announce-first-quarter-FY19-results-to-30-September-2018/

[60] https://www.eir.ie/pressroom/eirs-Gigabit-Fibre-network-expands-further-to-79-towns-and-villages-across-Ireland/

[61] Agreement between the Minister for Communications, Climate Action and Environment and Eircom Limited in relation to National broadband plan – commercial deployment commitment; https://www.dccae.gov.ie/documents/Commitment%20Agreement.pdf

commercial deployment commitment.[62] This footprint is referred to throughout this document as the '**Rural Commercial Area**'; and

(c) The NBP Intervention Area, also referred to by DECC as the non-commercial 'Intervention Area', where there is no existing or planned commercial high speed broadband services available and corresponding to the target areas for state intervention under the NBP, for the purpose of its contract with NBI.[63] This area includes circa 537,000 premises (delivery points). It is referred to throughout this document as the '**NBP IA**'.

3.32 The Urban Commercial Area and the Rural Commercial Area are collectively referred to throughout this document as the '**Commercial Areas**'.

3.33 In light of the NBP and other market developments (as also described in Section 5.2), ComReg considers it appropriate to implement a number of adjustments to the cost bases used to derive cost-oriented prices for the relevant services in this Decision, as discussed in further detail in Section 6.

3.4.2 The 2018 Pricing Decision

3.34 In the 2018 WLA/WCA Market Review Decision, ComReg imposed an obligation of cost orientation for FTTC prices which is further specified in the 2018 Pricing Decision. Under the 2018 Pricing Decision FTTC prices are derived from two models, the NGA Cost Model and the NGN Core Model and based on a weighted average of the costs of providing cabinet and exchange launched VDSL services:

(a) The NGA Cost Model primarily models the costs of FTTC/EVDSL specific infrastructure (e.g. FTTC cabinets and DSLAMs); and

(b) The NGN Core Model is used to derive certain core network cost inputs that are relevant to the provision of FTTC based NGA services (e.g. inter-aggregation link[64] costs for Bitstream and the link costs from the aggregation node to the exchange for VUA).

3.35 For the purpose of deriving cost-oriented prices for FTTC, ComReg assessed the recovery of access network costs across the various access services. Price controls generally allow Eircom to recover access network costs across all lines/services with reference to the nationally averaged cost of a copper line. In the 2018 Pricing Decision ComReg found that using national average access network costs as calculated in the Revised CAM as an input for FTTC based VUA/Bitstream services would not be appropriate because those services are not available to all of the customer base (by contrast to PSTN-WLR) but instead serve an urban footprint

[62] The ANM model reflects that Eircom rolled out high speed broadband to 340,000 premises rather than the 300,000 originally agreed to by Eircom with DECC.
[63] In the EC State Aid Decision, the area requiring intervention is called the "white" NGA areas.
[64] This includes the link between Local VUA and Remote VUA.

which generally consists of shorter lines. The FTTC VUA charges were set with reference to the geographic limits of the access network required to pass and serve FTTC customers and were not expected to make the same contribution to access cost recovery as those services provided nationally.

3.36 This geographic limit was applied to the costs for SLU and LLU which are key inputs to the NGA Cost Model.[65] In particular, the SLU and LLU cost inputs from the Revised CAM were adjusted based on the considerations in the 2018 Pricing Decision to reflect the shorter line lengths and higher line densities typical of FTTC and EVDSL services and better inform the build/buy decisions of all network operators providing NGA services in commercial areas.

3.37 The 2018 Pricing Decision also modified the approach generally used in price controls for the allocation of common costs[66]. The Revised CAM attributes common corporate costs on an Equi-Proportionate Mark Up ('**EPMU**') basis, where the direct costs are marked up by an equal percentage. In the 2018 Pricing Decision, ComReg decided for the purpose of FTTC pricing[67] that the EPMU approach was not appropriate. Instead, FTTC prices were set to recover common corporate costs from the commercial line base where FTTC services may be offered, and common corporate costs were allocated on a cost per service basis. This means that the SLU and LLU cost inputs into the NGA Cost Model were calculated to recover the same level of access network common and shared costs from both services.

3.38 As explained in further detail in Sections 5.7 and 6.7, the reasons for the approach followed in the 2018 Pricing Decision apply equally in respect of prices derived in the ANM. The ANM accordingly updates the Revised CAM to reflect this approach.

3.4.3 The 2020 WACC Decision & subsequent updating

3.39 Under the 2020 WACC Decision, ComReg is to update the WACC annually and use the most up-to-date WACC rate in its subsequent pricing decisions. In addition, subsequent to the adoption or publication of a new WACC rate, ComReg may intervene, in exceptional circumstances or where there is a material impact on prices.

3.40 ComReg accordingly indicated in the Consultation that the most recent WACC rate would be used in the ANM, being at that time in respect of Fixed Line, 5.61%. Since,

[65] Please see the details in Chapter 6 of the 2018 Pricing Decision.

[66] In this Decision document the terms "common costs" and "common corporate costs" are used interchangeably to describe the same cost categories. In the main, these categories relate to general overheads such as general IT system costs, office accommodation and transport management as well as corporate costs such as finance, legal, HR and senior management.

[67] See paragraph 6.226 of the 2018 Pricing Decision for further details.

in accordance with the 2020 WACC Decision, the WACC rate for Fixed Line has been updated to 5.56%, this updated WACC rate is used in the final ANM.[68]

3.41 In addition, following ComReg's indication in the 2018 Pricing Decision that FTTC prices may be updated for the WACC, ComReg proposed in the Consultation, following a review of the impact of both the change to the WACC and updated cost inputs from the ANM Model on the NGA Cost Model and NGN Core Model, and in light of the material impact on FTTC prices, to update applicable prices. ComReg also proposed in the Consultation to review CG Bitstream prices in order to ensure that build/buy signals for CGA and NGA remain consistent. Prices for CG Bitstream are set based on Eircom's BU-LRAIC+ costs, in order to allow Eircom to recover its costs while incentivising OAOs to migrate to fibre-based services where efficient to do so.[69]

3.42 These proposals, including ComReg's use of the most up-to-date WACC rate, are considered in further detail in Section 6.7.

3.5 FTTH connections/migrations charges

3.43 The 2018 Pricing Decision set out a pricing mechanism for FTTH connections/migrations. In summary, Eircom is obliged to ensure that:

(a) The charges for new connections and migrations to another service provider are the same; and

(b) The combination of a new connection charge and a charge for migration to another service provider may not exceed the level that would allow Eircom to recover its customer specific connection related investment over the lifetime of the underlying assets, given the same assumptions about customer churn as are used in the margin squeeze tests.

3.44 Following on from the 2018 Pricing Decision, Eircom set the price for FTTH connections / migrations at €170 (see ComReg Information Notice 18/101[70]). From 1 July 2020, Eircom reduced the charge for FTTH connections / migrations to €100.

3.45 In a settlement of legal proceedings brought by Sky against ComReg's 2018 WLA/WCA Market Review Decision and 2018 Pricing Decision, ComReg indicated that at the same time as consulting on the ANM, ComReg would consider the level of FTTH connection costs and issue a call for inputs on the market impact of the

[68] ComReg IN 21/68 - https://www.comreg.ie/publication/weighted-average-cost-of-capital-first-annual-update

[69] ComReg Consultation 17/26 in Section 9, paragraphs 9.25 to 9.34 and confirmed in Section 9, paragraph 9.83 of the 2018 Pricing Decision. The justification for the current methodology applying to CG Bitstream and BMB ultimately relied on that contained in in Chapter 9 of the 2018 Pricing Decision, specifically paragraph 9.49.

[70] https://www.comreg.ie/publication-download/ftth-connection-migration-charges

pricing of FTTH connection and migration charges, which was set out in Section 8 of the Consultation. Section 8 of this Decision considers the responses to the Call for Inputs and sets out ComReg's conclusions.

3.6 Eircom's HCAs ('Separated Accounts')

3.46 In Section 3.7 of the Consultation, ComReg discussed the reported excess returns for Narrowband Services in Eircom's HCAs (also known as 'Separated Accounts', in keeping with the Consultation ComReg use Eircom's HCAs in the remainder of this Decision) since the 2016 Access Pricing Decision. Issues such as the level of storm activity, the returns earned for ISDN, the level of depreciation on PSTN line cards and the difference in actual PSTN volumes, compared to those modelled, were discussed in the context of comparing the Narrowband returns in Eircom's HCAs to those expected following the 2016 Access Pricing Decision, and including the then applicable WACC rate of 8.18%.

3.47 The Consultation also considered how the price reductions on the POTS based FTTC charges that were implemented in the 2018 Pricing Decision would have led to lower revenues for the copper loop element of POTS based FTTC services, which are reported as part of the PSTN-WLR revenues in the "Wholesale Fixed Narrowband & Unbundled Access" statement.

3.48 ComReg noted the fact, that when Eircom implemented the 2018 Pricing Decision reductions from 1 March 2019, it did so by continuing to charge €16.41 for PSTN-WLR rental and applying all the required price reduction to the NGA VUA POTS based service. Eircom's HCAs for year ended June 2019 also originally reported the revenues in this way, with the result that the impact of the price reduction on POTS based FTTC did not result in reduced revenues or returns in the "Wholesale Fixed Narrowband & Unbundled Access" statement but rather in the "Wholesale Broadband Access" statement.

3.49 Subsequent to the Consultation, ComReg notes that Eircom's HCAs for the year ended June 2020 do now reflect that the 2018 Pricing Decision reduced the charges for the PSTN-WLR element of the POTS based FTTC charge and the 2019 HCAs have also been restated resulting in a reduction in the revenues and the returns reported in the 'Wholesale Fixed Access Narrowband and Unbundled Access' statement. ComReg also note that the format and content of Eircom's HCA Statements will need to continue to evolve as the focus moves away from narrowband to broadband based services.

3.50 In its submission, Eircom referred to ComReg's assessment of the level of returns as reported in Eircom's HCAs in Section 3.7 of the Consultation and took issue with the fact that ComReg did not present a quantification of key changes discussed in the subsection. Eircom also highlighted that ComReg did not include a "*further required bridging adjustment*" which Eircom presented to ComReg at a meeting on the 16

January 2020. Eircom proceeded to identify two additional 'bridging adjustments' that it considered relevant: the exclusion of working capital, which Eircom consider is "*a function of commercial financial decisions and outside the scope of regulation*", and the need to also adjust for "*both operating costs and capital costs associated with storm damage*".[71]

3.51 Eircom included a table based on applying bridging adjustments to the HCA Statements in recent accounts that, in its view, demonstrated that "*in the last three financial years when properly adjusting for costs it is evident that the economic returns have been consistently below the regulated WACC*."[72]

3.52 ComReg's intention when discussing the reported returns in Eircom's HCA accounts in paragraphs 3.50 to 3.65 of the Consultation, was to provide stakeholders with further background on how recent price decisions could be expected to affect the level of returns, in particular the possible impact that the 2018 Pricing Decision could have on narrowband returns. ComReg note that providing quantification of this analysis might have provided additional transparency to Eircom, but it would be unlikely to be of benefit to other stakeholders as such detailed analysis is usually considered confidential to Eircom and redacted. It is also the case that the main reason for presenting the analysis was because the previous HCAs only showed reductions from the 2018 Pricing Decision impacting the Wholesale Broadband Statement and ComReg wished to highlight the potential impact those price reductions could have on the Wholesale Narrowband Statements.

3.53 ComReg also note that the analysis provided by Eircom does not include all the required bridging adjustments that might be relevant when comparing the Revised CAM with the HCAs. For example, when Eircom highlight the capitalised storm costs for the financial year ended June 2017, ComReg would also expect that a comparison between the overall level of Capex on copper cables factored into the Revised CAM with the actual levels of Capex on copper cables recorded in the HCAs over the price control period would be included. Nor is there any reference in Eircom's analysis to other significant cost components of PSTN-WLR costs, such as a comparison between the relative provisioning costs in the Revised CAM and the PSTN-WLR provisioning costs recorded in the HCAs in recent years.

3.54 In relation to the exclusion of working capital, ComReg's view that such costs are relevant to the cost analysis undertaken in the cost orientation models is discussed in Section 5.7 (paragraphs 5.512 to 5.518) in relation to common corporate costs modelling.

3.55 In relation to the analysis of storm costs, as discussed further in paragraphs 5.553 to 5.564 of the Opex subsection, ComReg has always accepted that storms could

[71] Paragraph 130 of Eircom's Non-Confidential Response dated 8 January 2021.
[72] Paragraph 131 of Eircom's Non-Confidential Response dated 8 January 2021.

impact the reported level of costs and that prices should be based on a 'typical year' rather than the actual costs reported in any specific year. Furthermore, the fact that Eircom chose to capitalise a significant proportion of storm related costs for the financial year ended June 2017 suggests that the assets replaced would already have been fully depreciated, and that, in some respects, the storm damage served to expedite the replacement of assets that would have been factored into the ongoing replacement of copper cables each year that was included in the Revised CAM. It is also the case that the total Opex and Capex on service restoration in the financial year ended June 2018 is comparable to the level of R&M Opex incurred in the HCAs for the financial year ended June 2016, which also witnessed severe weather conditions and, when the costs are averaged to reflect those of a typical year, the averaged costs still do not exceed the level of TD R&M costs factored into the Revised CAM to inform PSTN-WLR prices.

3.56 ComReg also note that Eircom's analysis of PSTN-WLR returns simply excludes the costs and revenues associated with the line card/port element of the service, on the basis that the cost of the legacy network in the accounts is almost fully depreciated and the prices derived in the Revised CAM are based on the current cost of the Modern Equivalent Asset ('**MEA**'). However, this is inconsistent with Eircom's argument elsewhere in its response,[73] that modelling the MEA costs in the ANM should recognise the actual timing of Eircom's MSAN deployments and the implications that copper switch off might have on asset lives and fill factors.

3.57 Consequently, ComReg remains of the view that the level of returns recorded in the HCAs need to be assessed over a sufficiently long time-period to allow for the consideration of the impact of once-off events on reported costs, together with the timing of network deployments and price changes, rather than being based on the returns recorded in a single year.

[73] Paragraphs 167 to 169 of Eircom's Non-Confidential Response dated 8 January 2021.

3.7 Cost standards

3.58 As mentioned earlier in paragraphs 3.14 and 3.15 there are various cost standards, which are the means by which costs are allocated to services with the purpose of allowing the operator (in this case Eircom) to recover efficiently incurred costs associated with its network. Table 6 below describes some of the cost standards considered by ComReg as was shared in Section 4 of the Consultation.

Table 6: Cost standard descriptions

Concept	Description
(Pure) Long Run Incremental Cost ('LRIC')	LRIC includes the direct fixed and variable costs relevant to the increment of providing the service over the long-run (or often referred to as '**Pure LRIC**'). As a result, this 'Pure LRIC' approach does not include recovery of joint (or shared) network costs or common corporate costs, from other divisions of the operator's business.
Long Run Average Incremental Cost ('LRAIC')	LRAIC includes all of the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run. The main difference between LRAIC and LRIC, is that the increment that is considered under LRAIC tends to cover a wider range of services compared to the LRIC approach, e.g. LRAIC could consider all voice services while LRIC would focus on a sub-set of voice services such as wholesale call termination. LRAIC also includes an attribution of joint (or shared) network costs but excluding common corporate costs.
Long Run Average Incremental Cost plus an allocation for corporate overhead costs ('LRAIC+')	LRAIC+ is calculated in the same way as LRAIC, except LRAIC+ includes a mark-up to allow for the recovery of common corporate costs typically using an equi-proportionate mark-up ('**EPMU**'). Hence, LRAIC+ includes all of the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run, plus a mark-up for common corporate costs.
Fully Allocated Cost ('FAC')	FAC includes all of the costs efficiently incurred by the regulated operator, including sunk costs, which are typically allocated to products following allocation rules determined by the direct or indirect causality of costs with products. This approach includes all fixed costs, joint (or shared) network costs and common corporate costs. The FAC approach results in a price signal which has the advantage of being relatively consistent with the recorded investments incurred by the SMP operator. The FAC approach is similar to LRAIC+ to the extent that it attributes common corporate costs between the various services offered by the operator. However, the LRAIC+ and FAC outcomes can differ due to the different efficiency levels that are inherent to both approaches. The concept of LRAIC+ cost is generally applied in the context of an efficient operator building a modern network, whereas the FAC concept is usually applied to an existing operator and so runs the risk of including legacy inefficiencies.

4 Prices for PSTN-WLR and the supplemental charge for POTS based FTTC

4.1 Overview

4.1 As recalled in Section 1, the Consultation made proposals in respect of the specification of the price control for Public Switched Telephone Network Wholesale Line Rental ('**PSTN-WLR**') envisaged in ComReg's 2020 FACO Market Review Consultation. However, following notification by ComReg of its Draft 2021 FACO Market Review Decision to the EC on 19 July 2021, and the EC's letter of 20 July 2021 expressing serious doubts with ComReg's Draft Decision, by decision of 20 September 2021, the EC required that ComReg withdraw its Draft Decision. ComReg has accordingly postponed its consideration of the price control which it had proposed in the Consultation would apply in the Regional FACO Market, as envisaged would be defined in ComReg's final decision on its review of the FACO Markets.

4.2 Pending completion of the FACO market review process taking into account the EC's decision of 20 September 2021, and the adoption of a decision by ComReg as regards the future regulation of the FACO Markets, including any price control in respect of PSTN-WLR, the existing price control remains in place.

4.3 For the benefit of stakeholders ComReg recalls below the applicable price control, in respect of PSTN-WLR and POTS-based FTTC.

4.2 Applicable price control for PSTN-WLR

4.4 The price control obligation that applies to PSTN-WLR is one of cost orientation. It is set in out the Decision Instrument annexed to ComReg's 2015 FACO Decision, as amended by the 2016 Access Pricing Decision.[74]

4.5 The 2016 Access Pricing Decision requires Eircom to ensure that the monthly rental charge for PSTN-WLR is the higher of:

(a) Eircom's actual costs adjusted for efficiencies for the provision of PSTN-WLR nationally with the BU-LRAIC+ costs applied to the active equipment calculated using the Revised CAM; or

[74] Section 4.1 of the Decision Instrument at Annex 3 of the 2016 Access Pricing Decision amending Section 12.6 of the Decision Instrument annexed to the 2015 FACO Decision, and Paragraph 4.71 of the 2016 Access Pricing Decision.

(b) BU-LRAIC+ costs for Non-reusable Assets and active equipment and Eircom's indexed RAB for Reusable Assets for the provision of PSTN-WLR in the Modified LEA calculated using the Revised CAM.[75]

4.6 The price control for PSTN-WLR established by the 2016 Access Pricing Decision is not affected by this Decision and remains in place until further notice by ComReg.

4.7 The price charged currently by Eircom for PSTN-WLR under this price control is €16.59 per month (which includes rental costs, fault repair costs and connection/provisioning costs) and any amendment to the published price is subject to the notification and publication requirements set out in the 2015 FACO Decision.

4.3 Supplemental charge for POTS based FTTC

4.8 Under the 2018 Pricing Decision, where PSTN-WLR is provided on a line availing also of an FTTC based service such as FTTC / EVDSL VUA or Bitstream, the PSTN-WLR regulated price does not apply; instead in order to ensure that Eircom recovers the PSTN-WLR costs that are not covered by the price for the FTTC based service, Eircom may charge a Supplemental POTS-based charge.[76]

4.9 The Supplemental POTS charge is to be added to the FTTC price (and not to the PSTN-WLR charge) and set in Annex 7 of the 2018 Pricing Decision.

4.10 The price control for POTS-based FTTC under the 2018 Pricing Decision is not affected by this Response to Consultation and Decision and remains in place until further notice by ComReg.

4.11 The current applicable price for POTS based FTTC is €3.03 for the period ending 30 June 2022.

[75] See paragraphs 6.47 and 6.38 - 6.40 of the 2016 Access Pricing Decision for details on Modified LEA footprint used to set the PSTN-WLR price.

[76] This is because Eircom continue to use the full copper loop when providing a POTS based FTTC service, whereas an FTTC VUA or Bitstream service only requires the SLU loop between the cabinet and the customer premises if a POTS based service is not being provided.

5 Cost Modelling Approach: Access Network Model

5.1 Overview

5.1 This section provides a review of the ANM that was in Consultation and its key cost modelling approaches (including inputs, parameters and assumptions); a summary of the main Respondents' Submissions to these approaches and ComReg's assessment of these submissions. ComReg's final decision on the ANM cost modelling approaches is set out in this section.

5.2 Cartesian assisted ComReg in developing the ANM and prepared the Cartesian ANM Specification Document (the '**Specification Document**').[77] Access to a non-confidential version[78] of the final ANM and associated Specification Document is available to interested parties likely to be affected by the outcome of this Decision, upon request to ComReg. For access to the non-confidential final ANM and associated Specification Document, and the NGA Cost Model and NGN Core Model please contact ComReg's Pricing team.[79]

5.3 The remainder of this Section is discussed under the following subsections:

(a) Background to the ANM;

(b) Preliminary comments;

(c) Service Demand module;

(d) Geospatial module;

(e) PAM / DAM modules;

(f) Operating cost ('**Opex**') module;

(g) Capital cost ('**Capex**') module; and

(h) Assessment of FTTH connection costs.

5.4 Section 5 of the Consultation contained five questions in total. Four were related to the modelling undertaken in the Service Demand, Geospatial, Opex, and Capex

[77] During the Consultation phase six stakeholders sought and received access to the non-confidential Consultation ANM and documentation.

[78] The non-confidential version of the ANM excludes information considered to be confidential by Eircom or other operators and has been assessed as such in line with ComReg's confidentiality guidelines (ComReg Document 05/24). Any confidential values in the ANM have been randomised.

[79] Email Pedro.Fontes@comreg.ie and Karl.Hurley@comreg.ie with the subject matter of the email stating "*Access to the ANM NGA and NGN*".

modules. The fifth question was related to the assessment of FTTH connection costs in the ANM. Respondents' submissions are addressed as relevant in each of the subsections.

5.2 Background to the ANM

5.5 The ANM is intended to replace the Revised CAM.

5.6 As set out in Section 5.2 of the Consultation, following the 2016 Access Pricing Decision, the Revised CAM has been used to set prices for Eircom's regulated fixed access wholesale products.

5.7 The Revised CAM determined the prices for LLU, SLU, Line Share, CEI, Dark Fibre, PSTN-WLR, and CG SABB. Prices were set for the price control period 1 July 2016 to 30 June 2019, and indicative prices provided for the first two years beyond the price control period (i.e. until 30 June 2021).

5.8 The modelling approach undertaken in the Revised CAM in 2016 dimensioned the access network needed to serve a national demand, which at that time consisted predominately of copper-based services. This network was then valued using the costing information available at that point in time, with prices for different services determined based on usage of the network.

5.9 As part of ComReg's notification to the EC of the draft measures contained in the 2018 WLA/WCA Market Review Decision, the EC in its comments letter[80] to ComReg, called on ComReg to revisit the access prices and at least to update the results of the Revised CAM with more recent data. Furthermore, the EC requested ComReg to notify the resulting prices without undue delay.

5.10 As explained in the Consultation, mindful of the EC's comments, and of the key limitations of the Revised CAM for setting forward-looking prices – e.g. it only includes copper-based demand and its modelled period is coming to an end – ComReg considers that an updated cost model for Eircom's regulated fixed wholesale access products is timely. Hence, the ANM update is not only looking to provide a refresh of the Revised CAM but also take account of the key market developments in the Irish telecommunications market (e.g. fibre deployment).

5.11 Hence, in developing the ANM, ComReg considered inter alia the following:

(a) The Revised CAM covered price control period 1 July 2016 to 30 June 2019, with indicative pricing, under this model, provided thereafter up to 30 June 2021. The ANM serves to model costs covering the price control period of 1 July 2018 to 30 June 2030 to allow forward-looking prices to be set;

[80] Please see Appendix 2 of the 2018 WLA/WCA Market Review Decision.

(b) Eircom is presently providing copper and fibre (FTTC and FTTH) over its access network, so there is a need to consider the cost impact on copper-based services (including FTTC) from an expected migration of customers to full fibre;

(c) Given NBI's FTTH deployment in the NBP IA, there is an expectation that Eircom will transition to become a significant provider of CEI Access to NBI, with possible implications for cost-recovery related to poles and duct from CEI access charges for the cost-oriented prices of copper-based services, such as CG Bitstream, that use the same infrastructure;

(d) In view of the broader market developments which have taken place since the Revised CAM was last updated, there is a need to consider the various impacts, including the development of alternative fixed-line network platforms (such as SIRO or NBI) might have on the demand for services carried on Eircom's network;

(e) Finally, there is a general concern to take account of the richer data environment available to ComReg, particularly with regards to geo-marketing data.

5.12 The ANM covers the period from 1 July 2018 to 30 June 2030. The time periods in the ANM analysis are based on Eircom's existing financial years, and Cartesian models the services in scope in the ANM from 2019 until 2030.[81]

5.13 To develop the ANM, ComReg considered and used a variety of datasets and sources. The ANM includes information gathered from Eircom in September 2019, pursuant to ComReg's information gathering powers under Section 13D(1) of the Act, information provided to ComReg as part the ComReg Quarterly Key Data Report process and information provided voluntarily by operators including Eircom. ComReg also obtained from the DECC data on premises based on a "GeoDirectory" dataset. Subsequent to the closing date of the Consultation a number of requests were made to Eircom for updated data based on the most recently available Additional Financial Information ('**AFI**') (2019/20) or data to elaborate on points raised in Eircom's submission to the Consultation.[82]

5.14 The financial / costing information obtained from Eircom is mainly based on its financial year ending 30 June 2019. Eircom also provided volumes of active lines by service and exchange as of Q2 2019. Separately, ComReg also obtained, on a voluntary basis, information from Eircom on its FTTH rollout plans.

5.15 Active lines (including Eircode information) data was also provided by other operators (i.e. NBI, SIRO, Virgin Media and Imagine) to ComReg as part the ComReg Quarterly

[81] For example, the ANM model year 2020 refers to Eircom's financial year from 1 July 2019 to 30 June 2020.

[82] Eircom provided information to ComReg on a number of issues prior to the publication of this Decision (e.g. faults by exchange, supporting files for particular tables) or further clarification of its 2019/20 AFIs. Where relevant this "new" data has been referenced for the benefit of stakeholders.

Key Data Report process. These operators also provided, on a voluntary basis, information concerning their fibre rollout plans.

5.16 As explained in the Consultation, the ANM models the cost of access network services under two approaches, a Bottom-up ('**BU**') approach and a Top-down ('**TD**') approach.

5.17 A BU approach uses engineering rules to model a hypothetical efficient network operator operating a recently deployed network, which is then valued at current costs. A BU cost model does not rely on historical financial data. Instead, it reflects the choices of a hypothetical, forward-looking efficient operator from both a technical and an operational point of view. A BU model is a data intensive process of dimensioning the network assets to meet an assumed level of demand, as if the network were being built (either as it stands, or with improvements to the topology). The BU modelling approach is associated with models that are aimed at promoting efficient entry, since such a cost model can consider how a network would be built today using modern technology by a reasonably efficient entrant.

5.18 This approach is used to derive the access network costs for LLU, SLU, Dark Fibre and the cost inputs (LLU, SLU and the NGA Link between the local exchange and the FTTC cabinet) relevant to FTTC services.

5.19 The TD approach is intended to reflect the costs that a hypothetical efficient operator would incur operating and maintaining Eircom's legacy network. Hence, it uses Eircom's historical accounting data to inform access network costs, while the distribution of service demand is modelled to align more closely with the distribution of customers across Eircom's local exchanges. A TD cost model, can, in principle, use a historic or current cost base, as outlined above. However, TD cost models generally use a historic cost base, whereas BU cost models generally use a current cost base approach. A TD cost model, using the historic cost base, can, as a starting point, use the current financial information of the incumbent (e.g. Eircom), as an input to determine unit costs. The information required can be obtained from financial statements (e.g. the incumbent's income statement, balance sheet). TD cost models are generally used when the primary concern is ensuring cost recovery.

5.20 The TD approach is mainly used to derive the TD costs for the CG SABB service and PSTN-WLR service.[83]

5.21 Both modelling approaches have advantages and disadvantages, which were outlined in the Consultation.[84] TD models can be less time-consuming to implement than BU models, but inefficient costs might be included, and TD data cannot be easily converted into a forward looking approach. BU models on the other hand takes time

[83] Although, as noted in paragraph 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.
[84] Paragraphs 4.42, 4.45 and 4.46.

to model and requires in-depth knowledge of network operations but can avoid inefficient costs and is more forward looking.

5.22 Additionally, the ANM uses a "modified scorched node" approach to dimension the access network. The ANM builds the network based on existing Eircom cabinets and exchanges, but re-assigns premises to the nearest cabinet/exchange as relevant using an optimisation algorithm. Consequently, the network dimensioned in the ANM has a more efficient network architecture than Eircom's existing access network, due to the iterative nature of network deployment in a legacy network. For example, where Eircom would have recently added Remote Switching Units ('**RSU**') as part of its FTTC programme, the ANM assumes that all premises that are near the new RSU will be served from that RSU. However, most premises in that area may still be served from the original exchange even if it is no longer the nearest node to those premises. Therefore, the hypothetically efficient network operator that is modelled in the ANM reflects Eircom's scale and network presence but does not necessarily have the same distribution of customers across the nodes.

5.23 The ANM is comprised of six modules. These are a Service Demand module, Geospatial module, DAM (Duct Access Model) module, PAM (Pole Access Model) module, Opex module and Capex module.

5.24 These modules are discussed in detail in each subsection below, but a brief description of each is provided here (and diagrammatically in Figure 4):

(a) Service Demand module: calculates the volumes for copper and fibre services in each footprint for the time period of the ANM;

(b) Geospatial module: calculates the inventory of assets needed to serve all relevant premises in Ireland with copper and fibre services;

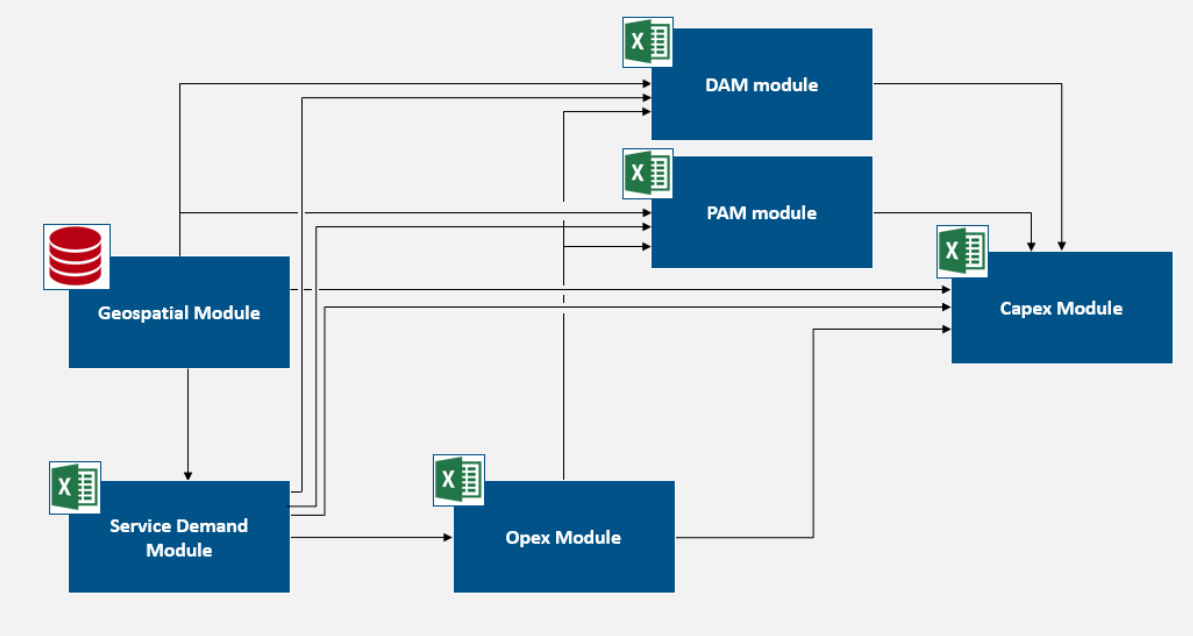
(c) DAM module: calculates the costs of Eircom's underground civil engineering infrastructure (e.g. trenches, ducts, chambers);

(d) PAM module: calculates the costs of Eircom's overhead civil engineering infrastructure (e.g. poles);

(e) Opex module: determines the operational expenditure expected to be incurred by the HEO in operating the network; and

(f) Capex module: makes use of the data outputs from the other modules to derive the overall ANM costs, as well as the costs of services under review.

Figure 4 Overview of the ANM



Source: Cartesian

5.25 The ANM models costs across 1,148[85] local exchange areas and in three separate geographic footprints (areas). Hence, the ANM attributes service demand volumes and costs across 3,444 (1,148 exchange areas multiplied by three footprints) footprints, hereafter referred to as '**exchange-footprints**'.

5.26 As discussed in Section 3.4.1, the combined footprints represent the total national premises in Ireland. The geographical footprints are:

(a) Urban Commercial, corresponding to the footprint where commercial operators are delivering or have indicated plans to deliver high speed broadband services. It also includes the premises where Eircom has deployed its FTTC network. This footprint covers approximately 1.5m premises (as at its inception in April 2017). This footprint is referred to throughout this document as the '**Urban Commercial Area**';

(b) Rural Commercial, corresponding to the footprint comprised of the premises passed by Eircom (or to be passed by Eircom) as a result of Eircom's commitment to deliver high speed broadband on a commercial basis under its 2017 Agreement with the Minster in relation to the National Broadband Plan – commercial

[85] ComReg's Market Analysis currently considers that there are 1,203 exchange areas in its analysis. However, many of these would have been created in recent years, with the result that reliable HCA data is not available for all these exchanges. Consequently, the ANM retained the 1,148 exchange areas previously used in the Revised CAM and integrated all the available data for newer exchanges to these 1,148 exchange areas.

deployment commitment.[86] This footprint is referred to throughout this document as the '**Rural Commercial Area**'; and

(c) The NBP Intervention Area, also referred to by the DECC as the non-commercial 'Intervention Area', where there is no existing or planned commercial high speed broadband services available and corresponding to the target areas for state intervention under the NBP, for the purpose of its contract with NBI.[87] This area includes circa 537,000 premises (delivery points). It is referred to throughout this document as the '**NBP IA**'.

(d) The Urban Commercial Area and the Rural Commercial Area are collectively referred to throughout this Decision, similar to the Consultation, as the '**Commercial Areas**'.

5.27 As noted, Eircom has rolled out its FTTC network in the Urban Commercial Area and is expected to complete the overbuild of FTTH over the next few years, while in the Rural Commercial Area, Eircom completed its Rural FTTH Network programme. NBI has commenced the deployment of its fibre network in the NBP IA, where Eircom is expected to become a significant provider of CEI to NBI. Hence, as ComReg outlined in the 2020 CEI Pricing Consultation, there are likely to be prospective differences in CEI costs between the costs in the NBP IA (for the purposes of NBI) and outside the NBP IA, and the modelling of CEI costs in the PAM/DAM reflects these differences within the cost stacks of services modelled in the ANM.

5.28 Unlike the other two footprints, which are characterised by lower line densities and longer line lengths, the density of the Urban Commercial Area gives rise to sufficient network economies to an extent that makes rival network competition viable and, to date, the network deployments by rival operators (i.e. Virgin Media and SIRO) have tended to be in the commercial footprints (primarily in the Urban Commercial Area). Therefore, the ability to determine prices that can inform the build or buy decisions for network operators is a primary concern when costing services offered in the commercial footprints, whereas in the NBP IA, the limited prospects for viable network competition without the aid of a state subsidy, mean that the primary consideration when setting prices is the need to ensure cost recovery.

5.29 ComReg considers that the above observations are relevant when assessing the costing of access network services, including copper-based NGA services. In particular, the Urban Commercial Area comprises premises that are close enough to the local exchanges to receive a viable NGA service over copper based VDSL technologies such as FTTC and EVDSL. Previously, the SLU and LLU cost inputs used to cost FTTC and EVDSL services were derived in the Revised CAM by assuming a maximum line length of 3km for LLU and 1.5km for SLU. However, these

[86] The ANM model reflects that Eircom rolled out high speed broadband to 340,000 premises rather than the 300,000 originally agreed to by Eircom with DECC.
[87] In the EC State Aid Decision, the area requiring intervention is called the "white" NGA areas.

cost inputs can now be derived in the ANM using the Urban Commercial Area as it corresponds to the footprint that Eircom is currently serving with FTTC and EVDSL services. In both the Rural Commercial Area and the NBP IA the typical line lengths are longer than in the Urban Commercial Area, such that an FTTH solution is required to provide an NGA service, since a VDSL solution is not capable of delivering the required speeds.

5.30 As proposed in the Consultation and retained from the Revised CAM, the geographical differentiation by local exchange area allows the ANM to specifically consider the costs of services, where appropriate, with reference to the costs and service volumes in the subset of exchanges where these services are and will continue to be regulated. This is further discussed in Section 6.

5.31 As noted above, ComReg is aware of the potential impact that a migration of customers from copper to fibre may have on Eircom's copper costs and its possible implications with respect – for example – to the timing of an eventual copper switch-off.[88] In the Revised CAM, service demand was modelled on a national basis and the forecast was then applied to all exchanges in the base year of the Revised CAM. This was considered a reasonable approach because the Revised CAM primarily modelled copper services and, by 2016 Eircom had yet to deploy any significant volume of FTTH. However, in light of the market developments, ComReg considers (as further discussed in connection with the Service Demand module) that retaining a national approach to demand modelling is no longer appropriate. Hence, the ANM models both copper and FTTH services and also recognises the extent that different operators are deploying FTTH in different areas. For example, the demand forecasts in the ANM allow for both the timing of FTTH deployment in each footprint (e.g. FTTH has already been deployed in the Rural Commercial Area while FTTH deployment in the NBP IA and in the Urban Commercial Area has commenced) and for the timing of Eircom's (eventual) copper -switch off. It also models the level of network competition over time (e.g. Virgin Media and SIRO are already present in the Urban Commercial Area but are not expected to have material deployments in other footprints, while NBI is in year 1 of its seven year plan to deploy in the NBP IA).[89] The potential impact of service demand assumptions on Eircom's copper costs, in particular for PSTN-WLR (given the hypothetical nature of the cost models underpinning copper-based NGA services), has been the subject of consideration and sensitivity analysis by ComReg.

5.32 Finally, in terms of the CEI (pole and duct access) costs which form part of the cost stack informing the prices for FTTC based VUA, LLU and SLU, ComReg has adopted

[88] As of October 2021 ComReg does not have sufficient clarity from Eircom in relation to its plans for such a switch-off of its copper network. ComReg has issued a call for input on this matter - https://www.comreg.ie/publication/migration-from-legacy-infrastructure-to-modern-infrastructure

[89] Consequently, if demand for copper-based services such as PSTN-WLR and FTTC was assumed to fall by 1% a year, the base year demand for all copper-based services was reduced by 1% in every exchange

for the purpose of this Decision the approach outlined in the Consultation and proposed in more detail in the 2020 CEI Consultation. Under this approach, the total cost annuities for poles and ducts recovered from the suite of ANM access services, other than Pole and Duct access, correspond to the quantum of costs in each footprint net of the projected revenues from NBI's Major Infrastructure Programme ('**NBI's MIP**').[90] ComReg however notes that the fact that CEI demand from NBI's MIP is concentrated in the Rural Commercial Area and the NBP IA footprints means that the contribution to cost recovery by footprint expected of NBI for CEI Access modelled in the ANM has minimal impact on the cost oriented prices for services such as LLU and SLU, as well as the associated cost inputs into the NGA Cost Model that inform the prices of FTTC based services. This is due to the fact that these services are all costed with reference to the costs pertaining in the Urban Commercial Area footprint only.

5.33 The remainder of this section reviews the cost modelling approaches used in each of the modules of the ANM in the Consultation; a summary of the main Respondents' submissions to the approaches used in each of these modules and ComReg's assessment of these submissions, including updates or modifications to the cost modelling approaches implemented by ComReg in the final ANM modules. ComReg's final decision with regards to each of the ANM modules is also set out in this section. In reaching its final decision, ComReg has taken account of the Respondents' Submissions. In discussing the Respondents' submissions, below, ComReg has not outlined each and every point made in the Respondents' submissions, but has set out the main points raised and, where appropriate, responded to these.

5.3 Preliminary comments

5.34 In the Respondents' submissions to Section 5 of the Consultation (dealing specifically with the cost modelling approaches) a number of points were raised which do not strictly relate to the cost modelling used in each of the ANM modules or are points that are a common theme across many of the submissions. ComReg's assessment of these comments is set out below.

Transparency and model complexity

5.35 Eircom and Sky raised concerns around the lack of transparency and the complexity of the ANM.

5.36 Responding to the approaches used in the Service Demand module (Question 4 of the Consultation), Eircom found it lacked "*documentation and / or discussion of how the module has been calibrated*". Eircom also claimed that ComReg failed to "*consult on the key inputs used as per the requirement in Article 6 of the Framework*

[90] See paragraph 2.5.

Directive",[91] and that documentation on how key inputs and assumptions in the Service Demand module affect the ANM outcomes should have been part of the Consultation process.

5.37 ComReg wishes to note that it did identify in the Consultation, the key assumptions and approaches used in the ANM and requested the views on these from stakeholders. Further, ComReg does not agree that a quantification of the ANM outputs under different demand or key input scenarios was or is a necessary condition to meet the requirements of Article 6 of the Framework Directive, now Article 23(1) of the Code. Article 23(1) of the Code, as transposed in Regulation 12(2) of the Framework Regulations, requires that ComReg before taking a measure which has a significant impact on the market, publish the text of the proposed measure, give reasons for it and invite submissions. The Consultation fully discharges, and exceeds, ComReg's obligations in this respect.

5.38 ComReg and its advisers Cartesian thoroughly documented the Excel workbooks underpinning the ANM (the Service Demand module and all other modules) and made available a very detailed Specification Document describing the methodology, assumptions, parameters and data sources used. ComReg also further discussed the key approaches and assumptions in detail in Section 5 of the Consultation for the benefit of stakeholders.

5.39 With regards specifically to the Service Demand module, to ensure that operators gained a thorough understanding, while protecting the commercial confidentiality of the input data used, ComReg prepared two versions of this module (and all other modules), one workbook containing all formulae to allow a review of the model logic and functionality with no input data, and a second version containing only the Service Demand output data used in the ANM. Hence, ComReg rejects Eircom's contention that the ANM, and the Service Demand module in particular, lacked documentation. Furthermore, ComReg considers that Eircom (and similarly all other Respondents), had sufficient information and was not prevented from performing the sensitivity analysis it judged necessary, as part of its review of the ANM. The submissions received from Respondents, including a detailed assessment of demand forecasts from Eircom and its advisors BRG, clearly demonstrate that sufficient information and transparency was provided.

5.40 ComReg also does not accept Eircom's contention that the ANM has not been subject to "*calibration to real world outcomes*".[92] With regards specifically to the modelling of demand, the base year data is directly linked to the level of demand for each of the access services provided on Eircom's network in 2019 and the distribution of demand across exchanges in the TD approach is consistent with Eircom's actual demand at the exchange level. Therefore, the base year data is

[91] Paragraph 39 of Eircom's Non-Confidential Response dated 8 January 2021.
[92] Paragraph 40 of Eircom's Non-Confidential Response dated 8 January 2021.

directly comparable with Eircom's actual data. Demand in future years is scaled from this baseline,[93] taking into account service availability and uptake trends captured in the BU forecast. However, future outcomes are inherently uncertain, and the current and near-term market environment adds to this uncertainty, especially due to the uncertainty around full fibre deployment (by Eircom and alternative network providers) in terms of how quickly and widely it will take place and the extent to which consumers will respond to the available retail offerings. It also stems from the uncertainty on the continued availability of copper-based services and ultimately on the timeline for copper to be switched-off.

5.41 Previous access network models (including the Revised CAM) were of an established copper network and forecasted demand by applying a single demand assumption to the demand of active copper services recorded across all exchanges. However, the ANM further considers variations in the timing of fibre network deployment between exchanges (and even within an exchange) and the likely impact on the demand of copper and fibre services. For example, some premises in an exchange area will have been passed by Eircom's rural FTTH network, while other premises in the same exchange area will not be scheduled to be passed by NBI's FTTH deployment until a later date. Therefore, a single demand assumption is no longer adequate, even at an exchange level, as some allowance must be made for the timing of the deployments by the various operators active in each exchange area.

5.42 In any event, future 'real world' demand is mainly relevant in the context of assessing the efficient cost of providing those services for which demand is expected to decline over time. ComReg considers this is mainly relevant for CG SABB, for which prices are set using a TD approach in the ANM (where cost recovery is a key concern) and less of a concern for LLU and SLU services, which are primarily used as inputs to cost FTTC and EVDSL, with copper loop costs set on the basis of an 'anchor technology'[94] with a hypothetical demand scenario of no overlay of FTTH in the Urban Commercial Area footprint.

5.43 Sky was also concerned with the fact that only non-confidential versions of the cost models (including associated documentation) were available as part of the Consultation. Sky submitted that it reserves its rights in relation to gaining full (i.e. unredacted) access to the ANM.[95] However, it should be noted that ComReg is not obliged to provide non-confidential versions of the cost models (including associated documentation) and only does so to allow interested stakeholders to review the basis of decisions, which ComReg may take as part of this (and other) Decision(s). In doing this, ComReg considers that there is a need to strike a balance between protecting commercially sensitive information and enabling operators' access to the cost

[93] As noted in paragraph 5.67.

[94] Further information on the anchor technology approach can be found in paragraphs 6.60 and 6.131 of the 2018 Pricing Decision.

[95] Paragraph 143 of Sky's Non-Confidential Response dated 8 January 2021.

models. ComReg considers that the right balance has been achieved by limiting the redaction of information to the minimum possible and by - in addition – randomising confidential data within a range of +/- 20% of the original values.[96]

5.44 In respect of concerns on the level of complexity in the ANM, Eircom argued that the proposed model is unnecessarily complex, and referred to its advisers BRG who noted "*Worksheets are not always built linearly, with some cells drawing on information that is above them in the worksheet, and others drawing on information that is below them. This circularity within the worksheet structure is not good modelling practice.*"[97] Eircom also referred to BRG having noted that the Capex module calculations are "*conceptually straightforward but complex*".[98]

5.45 Similarly, Sky noted that that the ANM was overly complex and attributed much of the complexity to ComReg's cost modelling approach of using three footprints, which Sky viewed as contrary to the 2013 EC Recommendation, and to the Commission Guidelines on market analysis and the assessment of significant market power, and contrary to the 1997 Notice on Market Definition.[99] This point is discussed by ComReg under separate heading below at paragraph 5.50.

5.46 However, as noted in the Consultation,[100] ComReg considered there were key aspects which needed to be addressed in the ANM. These included the need to consider the impact of an expected migration of customers from copper to full fibre as a result of Eircom/NBI fibre rollouts (including the switch-off of Eircom's copper network) and the development of alternative network providers. The necessary consideration of these issues added complexity to the ANM compared to the modelling approaches used in the Revised CAM, where those issues were largely absent.

5.47 With regards specifically to the Geospatial module, Eircom raised concerns that "*there is insufficient transparency of the methodology and tools used in the Geospatial Module for eir to develop an informed view of the appropriateness of the techniques used*" and argued that ComReg's approach in the Consultation is not consistent with Article 6 of the Framework Directive. In particular, Eircom noted that ComReg held workshops with interested parties as part of the consultation process to develop a model for mobile termination rates in 2016 and that ComReg should hold similar bilateral workshops for the ANM.[101]

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[96] See ComReg IN 20/116 - https://www.comreg.ie/publication/information-notice-operators-correspondence-on-clarifications-concerning-cost-models-access-network-model-pole-access-model-and-duct-access-model.

[97] Paragraph 135 of Eircom's Non-Confidential Response dated 8 January 2021.

[98] Paragraph 111 of Eircom's Non-Confidential Response dated 8 January 2021.

[99] Page 3 and later paragraphs 42, 43 of Sky's Non-Confidential Response dated 8 January 2021.

[100] See above Section 5.2.

[101] Paragraph 66 of Eircom's Non-Confidential Response dated 8 January 2021.

5.48 Sky also expressed the view that the unnecessarily complex modelling approach taken by ComReg does not lend itself to a transparent process. Sky's advisers Analysys Mason noted that the Geospatial module was not accessible via typical Office packages like Microsoft Access and commented that the explanatory documentation provided in the consultation process was deficient.[102]

5.49 ComReg notes that the development of access models in Ireland dates back to pre-2010 and the ANM follows on previous access costs models including the CAM and the Revised CAM. ComReg does not believe accordingly that requirements for workshops are the same in 2020/2021 as they were in 2016 in terms of operators' understanding of the general costing methodologies underpinning the access network costs models, and in particular that the provision of detailed documentation would meet the need of operators and allow for their in-depth review of ComReg's proposals, better than a workshop could. ComReg increased the level of detail available to operators in the documentation provided on the methodologies and costing approaches used in the ANM, in both the Specification Document and in the Consultation. ComReg has also improved the quality of data available in the confidential versions of the model shared with interested parties, while, as already noted above, allowing those interested parties the opportunity to submit questions and seek clarifications before finalising their responses. ComReg's responses to requests for clarification have been made publicly available in the interests of transparency to all stakeholders.[103]

Inconsistency with EC Recommendations / Market Definition

5.50 Sky considered that the ANM approach of using the three footprints was contrary to the 2013 EC Recommendation, to the Commission Guidelines on market analysis and the assessment of significant market power, and contrary to the 1997 Notice on Market Definition.[104] ALTO also expressed similar concerns.[105] Sky submitted that this approach led ComReg to applying a discriminatory approach to pricing for services in the NBP IA versus those outside it. Sky further added that "*This proposed approach fails met* (sic) *any of that criteria because it is not based "on the nature of the problem identified and justified in line of the objectives of the Framework Directive*"".[106]

5.51 ComReg disagrees with Sky's assessment. ComReg's objective was not to identify the potential for differentiated competitive conditions in each of the three footprints

[102] Section 1.3, pages 8 to 9 of the Analysys Mason Report.
[103] See ComReg's Information Notice 20/112, Information Notice 20/116 and Information Notice 20/129.
[104] Page 3, and paragraphs 42 and 43 of Sky's Non-Confidential Response dated 8 January 2021.
[105] Sections 3.1 to 3.4 of ALTO's Non-Confidential Response dated 8 January 2021.
[106] Paragraph 42 of Sky's Non-Confidential Response dated 8 January 2021.

considered in the ANM. In the ANM's modelling ComReg sought to take account of the following market developments:

(a) Eircom's FTTH rollout which (until recently) had been limited geographically to the designated Rural Commercial Area footprint;

(b) Eircom's IFN which is expected to geographically overlap with its current FTTC network;

(c) The fact that NBI will commercially operate its fibre network in the geographic areas designated part of the NBP IA; and

(d) Differing investment requirements to make CEI NGA-ready.

5.52 While, for example, FTTC has been determined by the 2018 WLA/WCA Market Review Decision to be part of the national WLA Market, ComReg in the 2018 Pricing Decision nevertheless determined the associated costs by capping line lengths for LLU and SLU thereby reflecting the higher scale economies of the higher line densities and shorter loops. Similarly, ComReg in the 2016 Access Pricing Decision recognised for CEI access that the costs differ geographically as a result of Eircom's sub-contractor rates between Dublin and Provincial areas. Hence, ComReg considers that recognising that cost and demand assumptions may vary by geography and how these will impact on cost recovery in markets where Eircom continues to be regulated is aligned with the objective of 2013 EC Recommendation of ensuring that "*operators can cover costs that are efficiently incurred and receive an appropriate return on invested Capital*".[107] Taking account of geographical differences also ensures that ComReg can properly calibrate the build/buy pricing signals where these are necessary in line with its objectives of promoting efficient investment and network competition.

Stranding of costs

5.53 Eircom raised the concern that the proposed approaches based on the ANM would risk a stranding of its costs. In its response to Question 7, Eircom submitted that the cost approaches adopted in the Capex module were not appropriate so that, without significant adjustments, the outcomes of the ANM would be erroneous. This would be because the approach proposed to model Eircom's copper switch-off results in a stranding of copper assets that would be contrary to Regulation 13(2) of the Access Regulations.[108] In this respect, Eircom's advisers BRG estimated that the proposed approach meant a total of €[✂ ■ ✂]m in copper assets would be stranded by 2028

[107] Paragraph 26 of the 2013 EC Recommendation.
[108] Paragraph 116 of Eircom's Non-Confidential Response dated 8 January 2021.

when all premises except some in the NBP IA will have copper switched off, unless copper asset lives were adjusted to accelerate depreciation.[109]

5.54 Eircom also raised concerns in its response to Question 13 regarding asset stranding as customers migrate off the copper-based ADSL service to NGA services before the copper assets costs are fully depreciated, and suggested that a "… *more correct price signal would be to remove the price control by cost orientation and to set a price cap based on movement from the current price level at CPI + 5% so that retail service providers can anticipate the pressure to move the remaining CGA customers to FTTH as soon as possible.*"[110,111] Similar points were made by Eircom when discussing the Consultation proposals relative to PSTN-WLR in its response to Question 9, that it would be unable to fully recover the costs of its investment in copper cables and that such stranding "*is wholly inconsistent with ComReg's regulatory objectives provided by Section 13 (2) of the Access Regulations*".[112] Eircom submitted the copper cable asset lives should be adjusted to reflect the effective economic life for the projected investments that Eircom is required to make in new copper cables

5.55 Eircom also took issue with ComReg's reference to the fact that Eircom has been recording excess returns for copper access services and the expectation that these should be sufficient to ensure that Eircom will have fully recovered all the investments it has made in the copper cable network over the economic life of the assets. In Eircom's view this statement fails to consider the positions and decisions ComReg has previously made, such as the observation ComReg made in paragraph A1.88 of the 2018 Pricing Decision that: "*Despite the price reductions for copper based services following from the 2016 Access Pricing Decision, the level of returns reported in the Wholesale Access Market in the 2016/2017 Separated Accounts are still above the regulated level of return of 8.18%, indicating that, even allowing for the increase in NGA investment as it deploys a rural FTTH network, Eircom is not being prevented from getting a 'fair bet' on its investments*".

5.56 Eircom interpreted this statement by ComReg as meaning "*ComReg considered that the losses incurred by eir for its FTTC investment were offset by its profits in PSTN-WLR and therefore eir had recouped its 'fair bet'. Consequently, ComReg cannot now suggest that historic profits in PSTN-WLR can (now also) justify the deliberate stranding of copper costs in the Regional FACO market as ComReg has already reasoned that those profits offset other losses*".[113]

[109] Paragraph 161 of the BRG Report dated 8 January 2021.

[110] Paragraph 219 of Eircom's Non-Confidential Response dated 8 January 2021.

[111] Footnote 23 of Eircom's Non-Confidential Response dated 8 January 2021of outlined that for Eircom, CPI "*means the annual percentage change in the CPI from June to June in the year preceding the financial year the price change is proposed to take effect, as published by the Central Statistics Office (Ireland)*."

[112] Paragraph 142 of Eircom's Non-Confidential Response dated 8 January 2021.

[113] Paragraphs 145 to 146 of Eircom's Non-Confidential Response dated 8 January 2021.

5.57 With regards to the prices for CG SABB in the Regional WCA set out in this Decision, ComReg is of the view that, given the relatively small number of CG SABB active lines, asset stranding of copper cable costs is not a significant concern and remains of the view that cost recovery needs to be considered over the lifetime of the asset/network rather than being based on the returns recorded in a particular year. Therefore, it is reasonable to consider past returns when evaluating overall cost recovery.

5.58 This aspect of cost recovery is evident in Eircom's own analysis of the returns in the financial year 2017/18, when it argues that the reported returns in that year's Separated Accounts should be reduced to reflect the fact that Eircom decided to capitalise €5.5m of costs incurred in repairing damage caused by Storm Ophelia rather than treating such costs as Opex, as had been the case in previous years. However, even if these storm related costs were not capitalised, the accounts for that year would still have recorded returns in excess of the regulated WACC. Therefore, it is reasonable to conclude that the fact that those capitalised costs may not be fully depreciated by the time that the copper network is eventually switched off does not mean that the asset costs have been stranded. The risk of copper asset stranding is also reduced by the fact that decommissioned copper cables can be expected to have a significant scrap value. For example, Ofcom noted that *"…BT has received proceeds from sales of copper recovered from its core network where that copper was no longer required or had been replaced, generating just over £700 million net proceeds over the 6 year period from 2010/11 to 2016/17*".[114]

5.59 Eircom's interpretation of ComReg's comments in the 2018 Pricing Decision is also misleading. ComReg did not mean that profits on other copper services were being used to offset losses associated with FTTC services as ComReg does not accept that FTTC is a loss-making service that requires subsidisation by other access services. While investment in new technologies such as FTTC can take time to show a positive return, that does not imply that the service is loss making.[115] ComReg's observation merely highlighted the fact that, even when Eircom was investing in NGA technologies, which would not be expected to show profitable returns until the NGA network matured, the overall returns that were reported each year for the Wholesale Access Market were still above the regulated WACC.

5.60 Eircom also raised the 'fair bet' principle in its response to Question 11, as well as later in response to Question 15. In response to Question 15 it argued that "*ComReg's approach should respect the 'fair bet' principle in allowing eir the opportunity to make higher returns on successful investments, to compensate for*

[114] See section A22.2 of "Wholesale Line Access Market Review: Statement – Annexes 17-27", Ofcom, 28 March 2018.

[115] Indeed, the NGA Cost Model uses an Economic Depreciation approach that considers demand and costs over an extended period when setting cost oriented prices for FTTC in recognition of the fact that demand on the FTTC network in the early years after deployment will not be sufficient to recover the incurred costs in those years

risk. While the risks for FTTC investments differ from full-fibre investment the principle remains consistent".[116]

5.61 However, ComReg notes that Eircom started to invest in FTTC technologies when FTTC was already a proven and successful broadband technology for incumbent operators in other countries, and at a time when the demand on Eircom's copper network was declining as customers migrated off copper to cable in search of faster broadband speeds. Therefore, it is questionable to what extent the decision to start investing in FTTC in 2013 posed a higher risk to Eircom's long-term profitability than a strategy that continued to rely on current generation fixed access technologies such as ADSL to retain demand. In such a scenario, it is not unreasonable to consider, as ComReg did, all the returns across the portfolio of access services contained in the Wholesale Access Market statement when assessing profitability and risk. Please see paragraphs 6.163 to 6.170 where this 'principle' is addressed.

5.62 In summary, ComReg is of the view that cost recovery needs to be considered over the lifetime of these assets rather than being based on the returns recorded in a particular year. Cost recovery also needs to allow for the fact that recovered copper cables have a significant scrap value. ComReg also considers that in commercial areas the issue of asset stranding is not separate from Eircom making a commercial decision to overlay its legacy copper network with FTTH.

5.4 Service Demand module

5.4.1 Design of the Service Demand module

5.63 As set out in the Consultation, the purpose of the Service Demand module of the ANM is to calculate the demand for copper and fibre services on the network of a Hypothetical Efficient Operator's ('**HEO**') over the period of the ANM (2019 through to 2030). The HEO is assumed to have Eircom's network footprint and market share so that demand at the national level should be equivalent to Eircom's overall demand. Copper and fibre volumes are then used as inputs to the BU calculations in the Capex, Opex, PAM and DAM modules.

5.64 The ANM Service Demand module calculates the volumes of fixed-line copper and fibre services and connections across the entire Eircom fixed access network by forecasting:

(a) The number of premises;

(b) The availability of Fixed Wireless Access ('FWA'), cable, copper and fibre services; and

[116] Paragraph 247 of Eircom's Non-Confidential Response dated 8 January 2021.

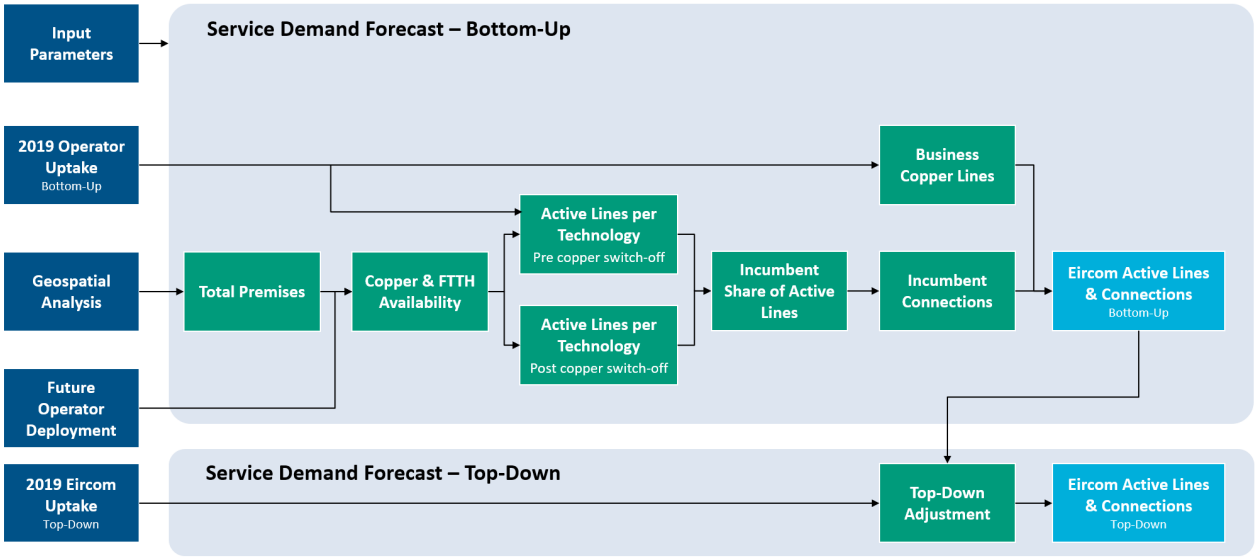
(c) The uptake of these services.

5.65 The Service Demand module of the ANM models both copper and FTTH services across the local exchange areas and in the three geographic footprints; Urban Commercial Area, Rural Commercial Area and NBP IA (as outlined above in paragraph 5.26). The ANM uses 1,148 exchanges. Hence, the Service Demand module forecasts demand in 3,444 exchange-footprints.

5.66 The Service Demand module derives a BU forecast by exchange-footprint based on the number of premises per exchange-footprint as determined in the Geospatial module. The ANM uses a modified scorched node approach, whereby the mapping of premises to exchanges in the ANM is different from the actual indexing of premises to Eircom's exchanges. Hence, in the BU approach the national demand for the different services (FTTC, FTTH, WLR, etc.) are attributed across the exchange-footprints based on the number of premises and on demand factors such as market share (presence of rival platforms) and technology assumptions (FTTC in Urban Commercial Area, FTTH in Rural Commercial Area, copper only in NBP IA).

5.67 In addition to a BU forecast, the Service Demand module also includes a TD forecast, which uses actual service volume data, as provided by Eircom, from 2019 by exchange and scaled to future years taking into account service availability and uptake trends captured in the BU forecast. This forecast is performed at the total exchange level (i.e. not at the exchange-footprint level), with the sole purpose of estimating the TD PSTN-WLR costs in the Capex module, which are also modelled at the total exchange. Figure 5 provides an overview of the Service Demand module.

Figure 5 Service Demand module overview



Source: Cartesian

5.68 In the Consultation, ComReg was of the preliminary view that the approach to modelling demand in the Service Demand module was appropriate, on the basis that:

(a) The approach to modelling demand in the BU scenario (based on Eircom service demand data at the national level and using information on premises locations, market shares, service availability and service take-up to forecast and distribute and demand across exchanges) is appropriate for modelling the demand relevant to FTTC based services.

(b) The approach to modelling demand in the TD scenario (based on Eircom service demand data at the exchange level) is appropriate for modelling the demand relevant to PSTN-WLR in the Regional Low-Level FACO Market (as proposed by the 2020 FACO Consultation)[117] and CG broadband services in the Regional WCA Market;

(c) The approach to modelling FTTH demand on Eircom's network was appropriate for modelling the costs associated with standard and non-standard FTTH connections and migrations.

5.69 The following key aspects of the Service Demand module were highlighted in the Consultation:

Premises

5.70 Premises per exchange-footprint are derived in the Geospatial module (the next subsection) at 30 June 2019 (Q2 2019) and consist of residential and business premises identified by unique Eircodes. They are allocated using a modified scorched node approach, with Eircodes assigned to the closest exchange, and to one of the three footprints, to allow a count of premises per exchange-footprint to be calculated. The count of premises is scaled to future years using a premises growth parameter of 0.7% sourced from SNL Kagan projection covering Ireland from 2019-2027.[118]

Service availability

5.71 In respect of 'Service availability', that is, the copper or fibre services that are available to a given premises at any given year, the Service Demand module uses information on active lines provided by Eircom (by exchange area) at Q2 2019 and information from ComReg's Market Intelligence database for the same period, which was provided by SIRO, Virgin Media and Imagine, to determine where copper, FTTC, FTTH, cable and FWA services are available. Service availability in the Service Demand module is determined using the following rules:

[117] Although, as noted in paragraph 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.
[118] S&P Global Market Intelligence – Global Forecast Table for Ireland, 10-year projection, 2019.

(a) Eircom ADSL[119] and copper-based voice only services are assumed to be available in all exchange-footprints;

(b) FTTC is assumed to be available in all Urban Commercial Area exchange-footprints and FTTH is assumed to be available in all Rural Commercial Area exchange-footprints;

(c) SIRO FTTH availability at an exchange-footprint was assumed if at least one SIRO FTTH line was active at that exchange-footprint in 2019 or if there was at least a 50% coverage of the premises in that exchange-footprint; and

(d) Cable services and FWA availability are assumed to be constant based on the uptake of these services at Q2 2019 in each of the exchange-footprints. If an exchange-footprint had no current cable or FWA active services in Q2 2019, then the services are assumed to be unavailable in that exchange-footprint.

5.72 Eircom total active lines were apportioned to exchange-footprints based on the total count of premises in each-exchange footprint after considering whether competing services were active at these premises. For FTTC and FTTH, the apportionment to premises was also done in this way, but only to exchange-footprints in the Urban Commercial Area and Rural Commercial Area footprints respectively. However, copper-based services such as voice-only and ADSL were assumed to be available in all exchange-footprints at 2019. For competitor active lines, the information gathered by ComReg contained in the vast majority of cases the associated premises' Eircode which allowed for a direct apportionment to exchange-footprints.

5.73 To determine when and where fibre services become available in the future, ComReg gathered information on FTTH deployment plans from Eircom, NBI and SIRO and mapped these plans to the exchange-footprints. Eircom deployment plans were mapped to all exchange-footprints in the Urban Commercial Area footprint (for the Rural Commercial Area footprint it is assumed that FTTH is available in all exchanges). NBI deployment plans were mapped to exchange-footprints in the NBP IA. If a fibre service is available in a given exchange-footprint, the Service Demand module assumed that all premises in that exchange-footprint can avail of fibre services.

5.74 With regards to Eircom's copper-based services, in the expectation that copper services will eventually be retired and cease to be available, ComReg assumed that copper switch-off will start by 2025 and would conclude no earlier than 5 years after an exchange-footprint becomes fibre-enabled (either by Eircom or by NBI). The timing of copper switch-off is, as noted in the Consultation, an assumption of the Service Demand module, as Eircom has not provided specific timelines with regards to copper switch off.

[119] Asymmetric Digital Subscriber Line

5.75 The deployment plans for FWA operators showed an increase in coverage and this was modelled by increasing the FWA growth parameters to +2.5% for 2020 to 2023. For cable services, ComReg considered that the deployment plans shared by cable operators (Virgin Media) were not sufficiently material to be included in the model.

Service take-up

5.76 In terms of service take-up, ComReg used as a starting point for the take-up of fixed line copper and fibre services (including cable and FWA) actual take-up as at Q2 2019. On the basis that, as a result of Eircom's FTTH rural network and NBI's planned FTTH deployment in the NBP IA, penetration of fixed lines (FTTH) in these areas in the future will likely increase, the penetration of fixed line services in both the Rural Commercial Area and NBP IA was trended over a period of four years to the level observed at the time of the Consultation in the Urban Commercial Area. ComReg assumed that there was supressed demand, as a result of fibre fixed line services not being available, and therefore this suppressed demand was likely to be eliminated in the years ahead once fibre services became available.

5.77 ComReg further assumed that voice-only services will continue until Eircom switches off the copper network and thereafter will be delivered as VOIP using FTTH. ComReg assumed that as a result of fibre availability in the Rural Commercial Area and the NBP IA, the take-up of voice-only services would tend to the lower take-up level observed in the Urban Commercial Area in 2019. The modelling also assumed no future growth in voice-only customers.

5.78 FTTH broadband penetration was calculated using a take-up curve. The take-up curve indicates the percentage of customers taking up the FTTH service in any given year. The take-up curve was set using information provided by NBI and by assuming that the FTTH share reaches 100% after 15 years, following FTTH deployment. ComReg used NBI's information to model the migration to FTTH services outside the NBP IA.

5.79 Once an exchange-footprint became FTTH-enabled by any operator (including Eircom), the FTTH take-up curve was applied to the share of fixed-line services. Overall demand for broadband was assumed to increase over time for two reasons – future household growth and the alleviation of suppressed demand. Furthermore, cable's share (not count of lines) of broadband lines was assumed to remain constant, and the share for FWA was forecast to increase by 2.5% for each of the first 4 years and then remain constant. As a result, migration to FTTH was achieved through a decline in copper-based fixed line services. It was also assumed that copper switch-off would occur five years after the launch of FTTH in an exchange-footprint, with the result that all remaining copper-based FTTC and ADSL would be force-migrated to FTTH in the Service Demand module.

5.80 Cable penetration rate was assumed constant on the basis of Virgin Media's deployment plans showing that its presence is likely to continue to be concentrated in the Urban Commercial Area footprint, where it is currently constrained by Eircom's competing FTTC. ComReg assumed that Eircom's FTTH overbuild in this footprint will be accompanied by Virgin Media's cable network upgrade to support bandwidths equivalent to those of FTTH, so that cable penetration would not be materially impacted by Eircom's FTTH. With regards to FWA penetration, ComReg did not explicitly model additional FWA service availability, instead ComReg assumed an increase of 2.5% per year over the first four years of the ANM.

5.81 Eircom's projected share of FTTH active lines was calculated with reference to the number of competing operators providing FTTH services. In exchange-footprints where there were no competing FTTH operators (such as in general the Rural Commercial Area) Eircom's share was assumed to be 100%. In exchange-footprints where Eircom and SIRO were both present, Eircom's share of FTTH lines was assumed to converge to a 'steady-state' share. ComReg assumed that the steady-state share could be proxied by Eircom's share of active total fixed-line broadband lines in the Urban Commercial Area footprint, where Eircom's competition with Virgin Media is well established.

FTTH connections

5.82 The Service Demand module also calculates the total volumes of FTTH connections, both standard and non-standard connections.

5.83 Eircom's FTTH connections were calculated per exchange-footprint based on the customer churn to Eircom's FTTH service, and the count of premises that have/have not previously connected to Eircom's FTTH network. Figure 6 provides a high-level view of the associated flows.

5.84 Premises were categorised based on Q2 2019 data into three categories:

(a) Those that were never connected to the Eircom FTTH network (therefore requiring a new fibre final drop), this category may also include those previously served by another FTTH network ((A) in Figure 6;

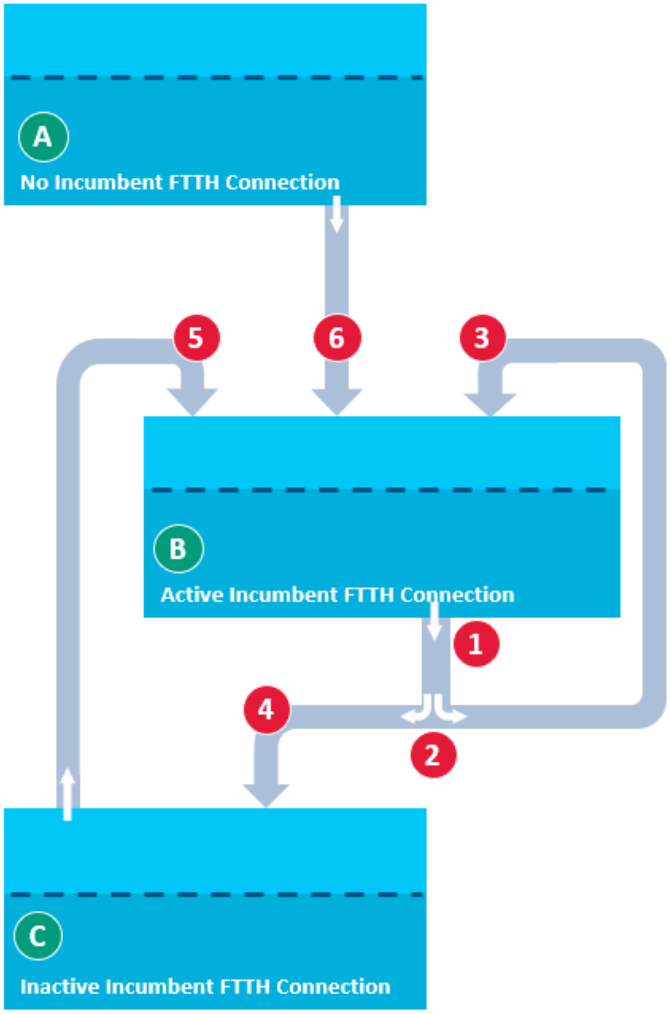
(b) those subscribed to an FTTH service using the Eircom FTTH network ((B) in Figure 6); and

(c) those premises with a ceased Eircom FTTH service (where the FTTH final drop is in situ). They may be subscribed to a FTTH service of another network ((C) in Figure 6).

5.85 Churn on Eircom's FTTH network was calculated based on the average customer life ((1) in Figure 6). Some ceases were modelled to result in re-connections of customers to the Eircom FTTH network and this was calculated with reference to the

Eircom steady-state share of FTTH lines ((3) in Figure 6). The remaining ceases were moved to an alternative service that does not use the Eircom FTTH network (or no service) ((4) in Figure 6). Some premises with an Eircom FTTH connection were modelled to re-subscribe to the Eircom FTTH network ((5) in Figure 6). In addition, new connections (i.e. requiring a new fibre final drop) to the Eircom FTTH network from premises with an alternative service (or no service), including forced migrations from copper to FTTH, were also calculated ((6) in Figure 6). In any given year the volume of new connections was set such that the total active Eircom FTTH lines in the following year was calculated as above (i.e. by setting Eircom's share of FTTH active lines to converge to its steady-state), after all other activities that change the categorisation of premises were taken into account.

Figure 6 High-level FTTH Connections Flow



Source: Cartesian

5.86 New FTTH connections were then split between standard and non-standard connections, based on the fact that some connections may require the installation of additional poles or an underground road-crossing when a premise is on the opposite side of the road from the main access cable routes. In the Rural Commercial Area

footprint ComReg set the volume of non-standard connections to be 10% of the total FTTH connections, based on the information provided by Eircom. In the Urban Commercial Area footprint all new FTTH connections were assumed to be standard connections.

5.4.2 Respondents' views and ComReg's assessment

5.87 Four Respondents (ALTO, BT, Eircom and Vodafone) provided a response to Question 4 of the Consultation on the assumptions and approaches used in the Service Demand module. Sky did not respond directly to Question 4 but ComReg has considered Sky's general response in its assessment of responses to Question 4, together with Sky's advisers Analysys Mason's specific comments on Question 4.

5.88 In summary, Eircom stated that the Service Demand module is not fit for purpose, that there is a lack of calibration and that ComReg failed to consult on its key inputs (see Section 5.3). Eircom was unclear how it can meet ComReg's regulatory objectives. BT agreed with the framework proposed by ComReg but expressed concern with the forecasts and in particular the assumption on the timing of copper switch-off. It encouraged ComReg to review forecasts and update the module annually. Vodafone agreed with the approach but pointed to errors in the calculations of FTTC demand. It noted that the assumption of copper to fibre migration is realistic but considered the timing of copper switch-off to be optimistic. It also called on ComReg to update the baseline data used to include 2020 data. Sky pointed to the incorrect allocation of Eircom's VDSL demand to exchange areas in the ANM when compared to where Eircom's services are actually available and also to the inconsistency in demand forecasts between the ANM Service Demand module and the NGA Cost Model.

5.89 Set out in detail below is ComReg's consideration of the Respondents' submissions and the updates made by ComReg, with the assistance of Cartesian Consultants, to the Service Demand module including for the purpose of addressing the issues raised by Respondents.

Top-down allocation of copper demand

5.90 One of the main points of Eircom's submission relates to the Top-down allocation of Eircom's copper demand (voice only and ADSL lines), which Eircom's advisers BRG consider was incorrectly skewed towards the NBP IA. According to Eircom, "*In reality, the penetration of eir physical copper lines by delivery point in the IA exchange footprints is substantially below that in the urban commercial footprints*".[120] Eircom explains this by the fact that business customers tend to be located closer to exchanges (a similar observation was provided by Sky's advisers Analysys

[120] Paragraph 43 of Eircom's Non-Confidential Response dated 8 January 2021.

Mason)[121] and consume multiple copper services and by the fact that ADSL cannot be supported on the long lines used to serve premises in the NBP IA. The same point was made by Eircom in its response to the 2020 CEI Pricing Consultation . Eircom referred to quantitative research it undertook in 2017 as a bidder for the NBP contract, where fixed line penetration was estimated at [✂ ✂]% of total premises in the NBP IA, indicating a total copper demand in the NBP IA of [✂ ✂]K lines (of which [✂ ✂]K were ADSL), which was further supported by data collected on a sample of 11 of its exchanges. Eircom further noted that rural voice only lines had been declining at a rate of [✂ ✂]% per annum and that on this basis the maximum active copper lines it could estimate having in the NBP IA in 2020 was [✂ ✂]K lines.[122]

5.91 The Top-down allocation of Eircom's copper demand to the NBP IA (and equally to the commercial footprints) was performed in the ANM Service Demand module with reference to the relative number of premises in the NBP IA identified by unique Eircodes. Eircom's total voice and ADSL demand is only partially identifiable via Eircodes to premises so a direct attribution of this demand to specific Eircoded premises is not feasible. Eircom alluded to this reality in its CEI response noting, "*The footprint of the NBP covers, in full or in part, multiple eir exchange areas. eir's wholesale customers are billed on a per exchange basis. This means that there is no reliable method by which to determine the current number of active customers on the open eir network within an exchange area that overlaps with the NBP footprint*".[123] Consequently, the method used by ComReg[124] was to attribute Eircom's copper voice and ADSL demand to premises in all footprints that did not have an active Eircom FTTH or FTTC broadband service or an equivalent active service from a competitor. This resulted in the Consultation's modelling of the ANM having a total copper demand for the NBP IA of 302K active lines.

5.92 ComReg accepts that the information provided by Eircom provides additional data points to estimate the level of active copper lines in the NBP IA. As a result, ComReg has updated the Service Demand module and re-calibrated the Top-down allocation of Eircom's copper demand to footprints by limiting the demand in the NBP IA to align closely with the total estimate provided by Eircom of [✂ ✂]K active lines in 2020. Active copper lines that were previously assigned to the NBP IA have consequently been re-assigned between the Urban Commercial Area and Rural Commercial Area footprints. As a result, the active copper line base assigned to the Urban Commercial Area footprint has increased by circa 70K lines. Table 7 below summarises Eircom's copper demand by footprint in 2018/19 as a result of these adjustments.

[121] Section 5.1.1, page 52 of the Analysys Mason Report
[122] Paragraph 162 of Eircom's Non-Confidential Response dated 18 November 2020 to ComReg 20/81.
[123] Paragraph 258 of Eircom's Non-Confidential Response dated 18 November 2020 to ComReg 20/81.
[124] See section 3.12 of the Consultation's Specification Document

Table 7 Active copper volumes by footprint

Copper Lines (2018/19)	Urban Commercial	Rural Commercial	Intervention Area	Total
Consultation	848K	137K	302K	1287K
Decision	915K	145K	227K	1287K

5.93 In addition, based on Eircom's comments, ComReg also implemented a reduction of 5% per annum on voice-only demand in the NBP IA and carried this assumption to the commercial footprints.[125]

Copper switch-off

5.94 With regards to the ANM assumption of 5 years for copper switch-off, Eircom disagreed, submitting that "*the ComReg blanket assumption of 5 years notice and the earliest switch-off beginning in 2025 is wholly inappropriate and unrealistic. First, 5 years should be regarded as an absolute maximum notice period that only applies in exceptional circumstances. A period of 1-3 years should be the norm and be guided by the specific circumstances related to the exchange area*".[126] However, a study by WIK referred to by Eircom,[127] shows that ComReg's assumption of 5 year copper switch-off timeline is not abnormal among the 10 countries surveyed, UK and France included.

5.95 Both BT and Vodafone expressed concerns as regards ComReg's assumptions on the timing of copper switch-off, which Vodafone thought optimistic. Sky's advisers Analysys Mason claimed that ComReg's assumption on switch-off leads to the inefficient outcome of the copper network being switched off last in the NBP IA with "*many thousands of lines which continue to earn revenue over the modelled decade*".[128] However, this appears to ignore the fact that, based on NBI's Optical Line Termination ('**OLT**') rollout plans, the NPB IA only achieves complete coverage with FTTH by 2026 and that until then, as discussed below, some Eircom exchanges may require more than one OLT to be completed before their copper switch off can be initiated.

5.96 ComReg further notes that Eircom has since published its thoughts on copper switch-off in a 'white paper'.[129] Eircom's white paper does not provide any clear indication of the timings for copper switch-off, and as such says nothing that would justify

[125] This percentage accords with ComReg QKDR data, which shows that between 2015 and 2020, PSTN lines have declined by on average 5.6% per year. ComReg QKDR data - https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/

[126] Paragraph 54 of Eircom's Non-Confidential Response dated 8 January 2021.

[127] Paragraph 53 of Eircom's Non-Confidential Response dated 8 January 2021. WIK Study in https://www.wik.org/fileadmin/Studien/2020/Copper_switch-off_whitepaper.pdf

[128] Section 5.1.2, page 54 of the Analysys Mason Report.

[129] https://www.openeir.ie/wp-content/uploads/2021/03/White-paper_Leaving-a-Legacy.pdf

ComReg's changing its assumption. ComReg considers that the existing modelling assumption of a 5 year switch-off timeline (and no earlier than 2025) remains a reasonable baseline assumption for the TD approach of the ANM and in particular its use to inform the prices of legacy services.

5.97 With regard to the approach to model copper switch-off by exchange-footprint as described in the Consultation,[130] Eircom considered that the possibility of setting different timelines within a single exchange, although technically feasible, was not realistic.[131] By way of explanation, ComReg's approach followed on from defining footprints with reference to premises rather than exchanges. Accepting Eircom's point, ComReg has changed the modelling of copper switch-off in the Service Demand module to reflect a single switch-off event by exchange based on the last footprint to be passed with fibre for at least 5 years within that exchange. ComReg considers this to be a reasonable approach, as Eircom suggested that some "*… eir exchanges will be entirely included in the footprint of a single NBI OLT but many will require the completion of two or more NBI OLTs before they are candidate exchanges for copper switch-off*".[132] While this change in the ANM does not impact on copper demand in the years before 2025, after 2025, the delay in copper switch-off in most exchanges results in a suppression of the FTTH uptake and a concomitant increase in copper demand.

FTTH uptake

5.98 Eircom's advisers, BRG, highlighted a number of points regarding the consistency in the calculations of the Service Demand module suggesting "*that the module does not function as it should and the assumptions and formulae do not meet this criterion of internal consistency*".[133] As part of this, BRG raised the issue that the rollout of FTTH in the NBP IA has the effect of increasing demand for ADSL.

5.99 BRG stated "*in the IA the number of FTTH lines is forecasted to increase from 0 in 2019 to 34,288 in 2024. In the same period, the number of non-cable, non-FWA broadband lines in the IA increases from 89,817 to 206,431*".[134] ComReg agrees that this model outcome, which was in effect driven by the increase in the fixed-line-penetration in the NBP IA outstripping NBI's FTTH uptake, is not plausible and therefore corrected the forecasting of fixed line and voice-only services. In this respect, and further to Eircom's comments above on copper switch-off,[135] ComReg set the current ADSL demand to be at the level estimated by Eircom of [✂ ■ ✂]K

[130] See paragraph 5.76
[131] Paragraph 55 of Eircom's Non-Confidential Response dated 8 January 2021.
[132] Paragraph 57 of Eircom's Non-Confidential Response dated 8 January 2021.
[133] Paragraph 87 of the BRG Report dated 8 January 2021.
[134] Paragraph 88 of the BRG Report dated 8 January 2021.
[135] See paragraph 5.94.

active lines in the NBP IA, with NBI's FTTH uptake then driving down this base as would be expected.

5.100 BRG also pointed to issues in the calculation of the FTTH uptake in the IA, "*Another example can be seen in the assumption in the Non-Confidential Service Demand Module that there is 5% uptake of FTTH in the first year it reaches an exchange-footprint, and 5% more per year thereafter. This should imply that in the first year after it begins FTTH roll-out in the IA, NBI would have a 5% customer share in the exchanges it has rolled out to, compared to Eircom's 95% share. However, the Non-Confidential Service Demand Module currently predicts only a 2.7% share for NBI compared to Eircom in these exchange footprints. This points to an illogicality in the functioning of the module. It appears to be caused by the module allowing FTTH roll-out by non-NBI competitors in the IA… In 2020, the first year of NBI's roll-out, more than 50% of the active FTTH premises in the IA are from competitors rather than NBI.*".[136]

5.101 ComReg reviewed the specific point of FTTH rollout of SIRO in the NBP IA. This also addresses a similar concern by BT in relation to SIRO's coverage: "*ComReg should work on real deployment figures in the model and not assumptions of 50% coverage etc. Real figures should be available to ComReg which already has access to homes connected through its Statutory Information Requests each quarter*".[137] However, in the Service Demand module, NBI/Eircom share of lines would not have been expected to align with the FTTH uptake curve because Eircom's voice-only lines were calculated (and added to NBI's share) independently of the FTTH uptake curve.[138]

5.102 As described above,[139] SIRO's network coverage of a given exchange-footprint is modelled on the basis of having at least one active SIRO line or at least 50% premises passed in that exchange-footprint. This is because the information provided by SIRO with regards to future deployment plans is based on deployment areas and not specific Eircode identifiable premises.[140] As a result of these assumptions, the Service Demand module (in the Consultation) modelled that circa 3% of NBP IA premises would be covered by SIRO. The NBP IA though should not, by definition contain any alternative fixed line network providers as none currently offers FTTH to premises in the NBP IA (or at the time of the Department's delineation of the area planned to). Hence, the Service Demand module has been altered to remove any modelling of premises in the NBP IA as being covered by SIRO, with these lines being re-assigned to the commercial footprints based on SIRO's coverage in these footprints. ComReg also considered changing the modelling of network coverage to

[136] Paragraph 89 of the BRG Report dated 8 January 2021.
[137] Page 4 of BT's Non-Confidential Response dated 8 January 2021.
[138] For further reference see the Consultation's Specification Documentation, paragraph 3.44
[139] Paragraph 5.68 (c)
[140] Paragraph 3.23 of the Consultation's Specification Document

a “partial” exchange-footprint basis - as inferred from BRG’s and BT’s commentary. ComReg found that doing this though would have introduced a significant level of additional complexity, which, together with the fact that SIRO’s uptake is already being adjusted for its actual coverage,[141] ComReg does not consider to be proportionate.

5.103 BRG also points to the fact that ComReg uses a single FTTH uptake curve for all three footprints and suggests using the data from Eircom’s FTTH rollout in the Rural Commercial Area instead.

5.104 ComReg accepts that the average uptake of fibre may ultimately differ across the footprints. For example, a higher take-up assumption for NBI is not implausible based on the reduced availability of alternative services in the NBP IA or the fact that the original Eircom connection charge of €270 in the Rural Commercial Area may have delayed RSPs in acquiring FTTH customers. However, based on the data available to ComReg from the Eircom Rural Commercial FTTH rollout, there is no clear indication that would suggest that the use of NBI’s uptake assumption in terms of overall FTTH subscribers in the NBP IA should be modified.

5.105 Notwithstanding the above, ComReg reviewed the FTTH uptake curve in the NBP IA. As noted above in paragraph 5.76, this curve is applied to the total existing fixed-line demand (excluding voice-only and FWA).[142] However, having considered that the outputs of this calculation – after allowing for an alleviation of suppressed demand – are below the total FTTH subscribers derived from NBI’s plans, ComReg modified the FTTH uptake curve to better align the modelled FTTH outputs with NBI’s expected number of subscribers, with this change having the effect of decreasing the level of copper demand in the NBP IA in the TD approach of the Service Demand module.

5.106 An additional change, related to BRG’s points regarding the increase in copper uptake in the NBP IA following NBI’s deployment, was made to reflect the alleviation of suppressed demand in the Rural Commercial Area and NBP IA, as noted above. While in the Consultation the penetration of fixed services in both these areas was assumed to normalise over a period of four years to the level in the Urban Commercial Area, the increase in fixed line penetration in these areas is now directly linked to the increase in FTTH uptake;[143] this is consistent with the proposition that NBI’s fibre will mostly drive the decline in Eircom’s copper demand.

[141] Paragraph 3.24 of the Consultation’s Specification Document
[142] In commercial footprints cable demand is also excluded.
[143] See Section 3 of the Specification Document for a detailed description of the calculations.

Data updates

5.107 Vodafone raised a concern that more up to date volume data was not used. According to Vodafone "*it is critical that actual data is reflected for 2020 as assuming publication of the ANM decision at the end of Q2 2019 the starting point for trending Service Demand module is then based on active line data that is already 2 years out of date*".[144] ComReg reviewed the volumes associated with Eircom's copper access network for 2020, which are published by Eircom as part of its regulatory accounting obligations.[145] The volumes show a year on year decline of 4.6%, which is reasonably in line with the change in copper active lines modelled by the ANM of 2.8%. In addition, Vodafone's advisers Frontier Economics pointed to errors in the calculation of the total fixed line demand. In the Rural Commercial Area footprint. In particular, Frontier Economics identified that the presence of an FTTH alternative network provider in a subset of exchanges had the effect of decreasing over time the fixed line penetration in these exchanges and noted that "*it is unreasonable to expect that after the deployment of a higher-quality broadband network in previously under-served areas, the penetration in those areas would fall*." [146] Frontier Economics estimated this to occur in 5% of the Rural Commercial Area exchange-footprints with the effect that the total fixed line demand in the ANM was underestimated by approximately 2.7K by 2024 with a consequential impact on FTTC prices. ComReg and its advisers Cartesian agree that a correction is warranted and consequently have modified these calculations to ensure that over time, in those exchanges where an FTTH competitor is present, the fixed line penetration is equivalent to that observed in the Urban Commercial Area exchange-footprints.

Allocation of FTTC demand in ANM

5.108 Sky's advisers Analysys Mason argued that the ANM allocation of FTTC demand by exchange-footprint was unrealistic, when compared to Eircom's actual exchange FTTC data.[147] Analysys Mason identified 131 exchanges where Eircom's actual data show that FTTC services are not available but where the ANM Service Demand module assigned FTTC active demand. According to Analysys Mason, as a result, the "*spreading of FTTC demand across 98% of exchanges reduces the economies of scale which exist for FTTC areas, and instead causes FTTC inputs (LLU and SLU) to pay disproportionately more for areas which have lower economies of scale (being RC and IA areas)*."[148]

5.109 It is not apparent in these comments whether Analysys Mason has fully taken into account that the ANM follows a modified scorched node approach (see paragraphs

[144] Page 6 of Vodafone's Non-Confidential Response dated 8 January 2021.
[145] See Statement of Network Costs Wholesale Markets for the year ended 30 June 2020, page 16, available in https://www.eir.ie/regulatoryinformation/separated-accounts/
[146] Section 2.2.3, page 24 of the Frontier Economics Report dated 8 January 2021.
[147] Eircom's NGA APQ and Masked CLI file.
[148] Section 5.1.1, page 53 of the Analysys Mason Report.

5.65 to 5.67 above and Section 5.5 of the Consultation), where the mapping of premises is to the nearest Eircom cabinet and exchange rather than following the exchange footprints on Eircom's legacy network. As set out in the Consultation,[149] the Urban Commercial Area footprint has been defined to exclude all premises that have been passed by either Eircom's Rural 300k or that have been deemed to be in the NBP IA, with the result that the Urban Commercial Area footprint only includes premises that have been targeted by Eircom's FTTC and EVDSL deployments. The scorched node approach then maps these premises to the nearest node with the line loops being dimensioned using a 'shortest' path algorithm, as discussed in the Consultation.[150] If premises were instead assigned to a smaller number of exchanges, in the manner suggested by Analysys Mason, it would increase the line count at some exchanges, but it would also increase the loop length associated with those lines.

5.110 The LLU/SLU costs are derived using a LRAIC+ approach that considers all active copper lines in the Urban and Rural Commercial Area footprints with the result that the costs are derived with reference to the active line base for all copper-based services across all exchanges rather than the costs associated with individual services at a sub-set of exchanges. As longer loop lengths are generally associated with higher costs, excluding all line lengths associated with serving premises in the Rural Commercial Area and NBP IA footprints means that the shortest path algorithm adopted in the scorched node approach in the Geospatial module ensures that the cable network is dimensioned in an efficient way that is consistent with an existing HEO operating a recently deployed network in the Urban Commercial Area footprint. At the same time, the approach to attributing FTTC/VDSL demand across the premises in the Urban Commercial Area footprint in the Service Demand module is consistent with the LRAIC+ approach used to cost the LLU/SLU in the ANM which are used as inputs in the NGA model.

Consistency between ANM and NGA Cost Model

5.111 Analysys Mason also pointed out what it considered an inconsistency of demand between the ANM and the NGA Cost Model on the basis that "*The Revised CAM assumed that the copper network would be the basis of providing NGA (VDSL) services in perpetuity, and determined copper costs on this basis. On the other hand, the ANM represents ComReg's most recent perspective and assumes that the copper network will be entirely replaced in the coming years, and that FTTH will provide NGA services in perpetuity*".[151]

5.112 It should be noted that the baseline starting volume in the Consultation version of the ANM (financial year 2018/19) is reasonably aligned with the NGA Cost Model (see

[149] Paragraph 6.35 of the Consultation.
[150] Section 5.5 of the Consultation.
[151] Section 3.5.2, pages 37 to 38 of the Analysys Mason Report.

Table 8 below). The NGA Cost Model forecast that for 2018/19 a total demand of circa 846K lines, 689K of those being VDSL subscribers with the remaining 157K being ADSL subscribers. This compares with an Eircom (VDSL and ADSL) demand of circa 888K in the ANM Service Demand (Eircom's actual demand is higher than forecasted in the NGA Cost Model due to ADSL demand not declining as forecast). This compares with actual volumes from ComReg QKDR data which shows total VDSL and ADSL to be 873K at the end of 2019.

5.113 However, ComReg accepts that the future demand assumption used to derive the LLU/SLU costs inputs are not consistent with the forecasts included in the NGA Cost Model which, based on the anchor technology approach,[152] modelled a stable copper based VDSL demand. Therefore, ComReg has revised the Bottom-up Service Demand forecast which is used to set the cost of the LLU/SLU inputs by retaining the assumption from the NGA Cost Model that Eircom would not overlay its FTTC/EVDSL network with FTTH thereby retaining a stable VDSL demand over the modelled period, consistent with the anchor technology approach. As a result, the Bottom-up Service Demand models a total combined demand of VDSL and ADSL of 888K in 2018/19, declining to 791K in 2023/24 (a reduction of 11%). In comparison, the NGA Cost Model modelled a total of 846K in 2018/19, declining to 741K in 2023/24 (a reduction of 12%). The higher demand in the ANM in 2018/19 of 888K results from ADSL volumes being higher than forecast in the NGA Cost Model. ComReg considers that the decline of demand modelled in the ANM, which is driven primarily by churn of ADSL demand to alternative network providers, is broadly aligned with the decline of overall VDSL demand in the NGA Cost Model. Table 8 summarises these results. Hence, ComReg, is of the view that with these modifications the ANM's demand assumptions are consistent with the demand assumptions in the NGA Cost Model.

Table 8 VDSL/ADSL volumes ANM and NGA Cost Model

	2018/2019	2023/2024
ANM	888K	791K
NGA Cost Model	846K	741K
ComReg QKDR data	873K[153]	

5.4.3 Conclusion

5.114 Having considered Respondents' submissions, ComReg remains of the view that the Service Demand module, as consulted on in Section 5.5 of the Consultation, is a reasonable basis for the BU approach to model the demand of services across

[152] This scenario in the modelling is known as the "FTTC Anchor approach".

[153] Total VDSL and ADSL end 2019 - ComReg QKDR data - https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/.

markets, subject to the following changes as discussed above:

(a) Re-allocation of the Eircom Top-down copper demand by footprint;

(b) Modification to the FTTH uptake (under the Top-down approach);

(c) Change to the modelling of copper switch-off by exchange (under the Top-down approach);

(d) Re-alignment of the ANM and NGA Cost Model demand (under the Bottom-up approach).

5.115 The Service Demand module, presented in the Consultation has been finalised on this basis and the amendments made are reflected in the prices set out in Section 7.

5.5 Geospatial module

5.5.1 Design of the Geospatial module as proposed in the Consultation

5.116 The primary purpose of the Geospatial and Passive Dimensioning module ('**Geospatial module**') of the ANM[154] is to determine the quantity of network assets required to provide access services in various parts of the network using a BU approach.[155]

5.117 A BU cost model for the access network of a hypothetical existing operator can be approached on either a "scorched-earth" basis or a "scorched-node" basis.

5.118 A scorched-earth approach assumes that the required equipment quantities can be deployed at node locations optimal to the overall network design, as if the network was being designed on a green-field site. The methodology makes no reference to existing network layouts and so applies no constraints on the number, location or configuration of nodes to be dimensioned. As such, the results are driven purely by the defined dimensioning rule set and the area to be covered. The resulting dimensioning would imply the most theoretically efficient network design to an extent that it may not closely resemble the actual network layout that even an efficient operator would be practically capable of deploying. Therefore, a scorched-earth deployment runs the risk of modelling a network with an unrealistic level of efficiency.

5.119 Conversely, a scorched-node approach recognises the historical evolution of the access network that has been deployed by the existing operator, using the historic

[154] Further information on the Geospatial module is contained in Section 4 of the Specification Document.

[155] Top-down ('**TD**') models use data from the operators accounts and so do not require Geospatial analysis to dimension the network as the network costs are already recorded in the accounts. Nevertheless, the ANM can use the Bottom-up analysis to allocate the TD costs to network elements (e.g. attribute the capital costs of underground infrastructure to underground network elements such as cabinets, chambers, trenches, ducts, sub-ducts, etc.).

location of network nodes but allows the geospatial analysis to determine the appropriate network configuration to make efficient use of those node locations.

5.120 As an operator develops a fixed access network, the location of network nodes will be dictated mainly by factors such as the location of the buildings that are being passed by the network and forecasts of demand for the services to be carried on the network. However, over time, with population movements and the development of new estates and business parks, new nodes are integrated into the existing network to serve the changing customer base. Consequently, the existing node that is being used to serve a building may no longer be the closest node to that building, with the result that the existing network layout cannot be considered truly optimal for the current or anticipated conditions in the market.

5.121 The Geospatial module applies a modified scorched node approach whereby Eircom's existing cabinet and exchange locations are used but not the existing connections between premises and node locations. Instead, a shortest path algorithm is used to determine the most efficient network layout – for example, a housing estate may have been connected to its closest exchange when it was first developed, but over time a new exchange/cabinet, closer to that housing estate, may have been deployed to service the growing demand in the area.

5.122 The Geospatial module also uses data analytics to dimension the passive components of the network to meet the required coverage. The access network is comprised of cables on poles and ducts deployed along public roads. There are essentially three sets of cable paths that need to be considered when dimensioning an access network that can connect all premises to the nearest local exchange:

(a) Final drops - The set of paths linking each premises to the nearest road section;[156]

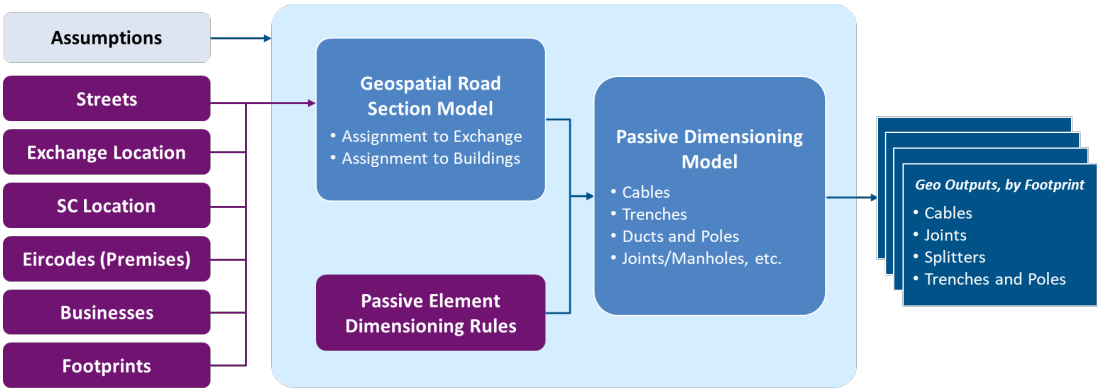
(b) Distribution side (D-side) - The set of paths linking each road section to its nearest cabinet;

(c) Exchange side (E-side) - The set of paths linking each cabinet to its nearest local exchange.

5.123 The "Geospatial Road Section Model" strand of the Geospatial module determines geospatial parameters for each road section; a second strand, the "Passive Dimensioning Model", estimates the passive components required to connect premises on the road sections (e.g. quantity of poles, size of cable, lengths of trenches, etc.). Figure 7 shows the relationship between the inputs, both models, and the Geospatial outputs, which are used as inputs by the ANM Capex module.

[156] All streets and roads are segmented at intersections to form "road sections".

Figure 7 Geospatial analysis – high level approach



Source: Cartesian

5.124 In the Consultation, ComReg was of the preliminary view that the approach to determining the quantity of network assets required to provide access services in various parts of the network using a BU scorched node approach was appropriate, on the basis that:

(a) The modified scorched node approach based on Eircom's node locations followed in the Geospatial module together with the application of efficient network dimensioning rules to deploy copper and fibre cables along the Irish road network reflects the approach which an HEO deploying an access network in Ireland would follow.

(b) Applying a modified scorched node approach in that way ensures that the network layout that is modelled in the BU scenario of the ANM avoids many of the inefficiencies that are inherent in Eircom's existing network layout and is a better approximation of the network layout that would be adopted by a hypothetically efficient network operator deploying a fixed access network in Ireland today.

(c) The design of the Geospatial module allows ComReg to dimension a network comprising three different footprint scenarios (Urban Commercial Area, Commercial and All) which ensures that the ANM can isolate the costs of a standalone access network that can serve all premises capable of receiving a viable FTTC service in Ireland (the Urban Commercial Area footprint), as well as calculate the incremental network costs required to extend that network to serve all remaining premises (the Rural Commercial Area and NBP IA footprints).

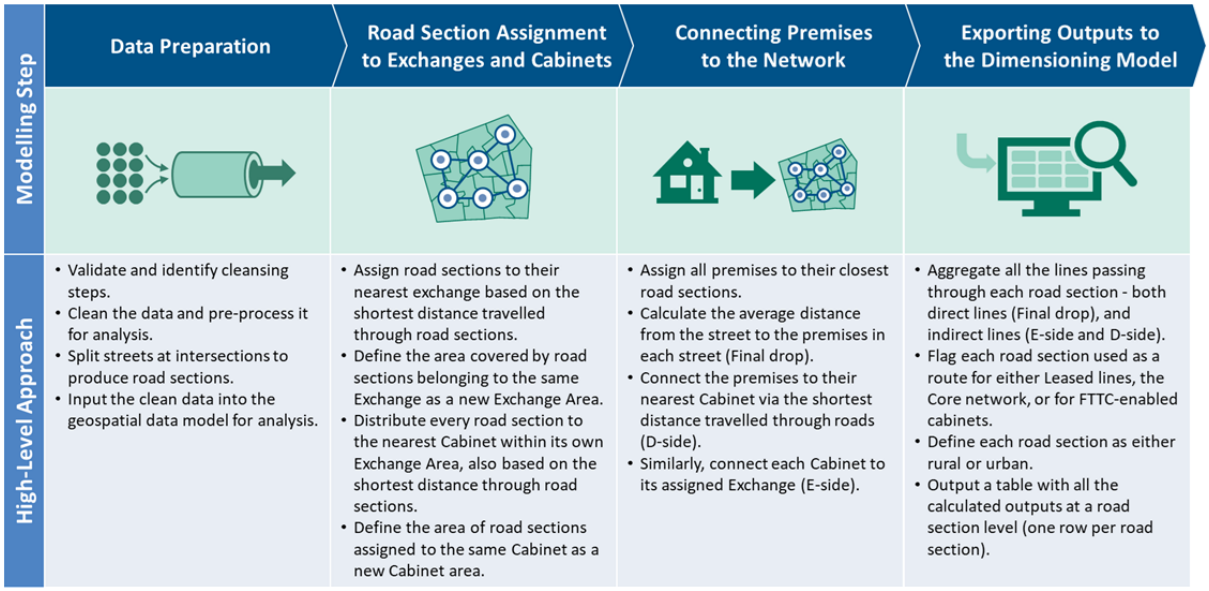
(d) The incremental view of footprint costs allows understanding the cost differences pertaining to civil infrastructure costs across the footprints.

5.125 The following key aspects of the design and population of the Geospatial module were highlighted in the Consultation:

The Geospatial Road Section Model

5.126 As described in the Consultation, the Geospatial Road Section model was built and populated in four stages: data preparation; assigning road sections to cabinets/exchanges; connecting premises to the road sections in the network; and exporting outputs to the dimensioning model. Cartesian's overall approach is summarised in Figure 8.

Figure 8 Geospatial road section modelling approach



Source: Cartesian

5.127 The first stage centred on data preparation and cleansing. Data for this model was sourced from "OpenStreetMap" (as at 4 July 2019) and the data was then cleansed to exclude roads in Northern Ireland and the roads that are unlikely to be used for network deployments such as motorways. Streets/roads were then sub-divided into "road sections", using 2016 population density data by square kilometre from the Central Statistics Office ('**CSO**') to classify road sections as being either rural or urban. Where the population within a square kilometre is greater than or equal to 750 then the square was classified as Urban, otherwise it was classified as Rural. Road sections that transition between rural and urban squares were classified as rural.

5.128 This classification informed the network dimensioning rules in the ANM: for urban road sections all cables were deployed underground, while rural routes were usually overhead. However, additional dimensioning rules also meant that sections of rural routes may be underground, e.g. all E-Side and core routes were underground and if the D-Side cable capacity required on the road section was in excess of 200 pairs then the D-Side cable was underground.

5.129 Eircodes were used to determine the physical location of premises, based on "GeoDirectory" data provided by DECC.[157] Similarly, Eircode data was used to identify the location of circa 10k business premises, which informed the dimensioning of network assets for business specific services that used the access network, such as leased lines. The use of Eircode data gives a slightly lower premises count overall when compared with the delivery point data used by the DECC to specify the requirements of the National Broadband Plan (2,391k Delivery Points, whereas Eircodes totals to 2,204k) as an Eircode can account for more than one delivery point. However, industry data shared with ComReg used Eircodes and, as Eircodes can be associated with every building in the country, ComReg considered that they are an appropriate basis for estimating network deployment costs.

5.130 Finally, each Eircode was assigned to one of the three geographic footprints of the ANM based on data provided by the DECC and Eircom. Road sections were assigned to each footprint based on a combination of the designation of the majority of premises on a road section and, in instances where there were no premises, the road section was assigned to the footprint that covered the greatest part of the road section.

5.131 For the second stage, all road sections were assigned to the nearest local exchange based on the shortest distance travelled through road sections, to form new local exchange areas, based on location data for its exchanges (provided by Eircom).[158] Once a local exchange area was defined, the road sections within the local exchange area were distributed to the nearest cabinet to define new cabinet areas, creating the basis for the scorched node approach used throughout the ANM.

5.132 In the third stage, all premises in the local exchange area were assigned to the nearest road section with distribution points (DPs) placed on road sections that have premises – if there were no premises on the road section then no DP was dimensioned.

5.133 Final drops[159] were then deployed to connect the premises to the DP, while DPs are connected to the nearest cabinets to form the distribution side (D-Side) of the network and cabinets are connected to the local exchange to form the exchange side (E-Side) of the network.

5.134 The third stage also generated output for the Passive Dimensioning model. The output generated for every road section included: its length; the number of premises on each side of the road section; distance from the premises to the road section, and the distance along the road section between the first and last premises.

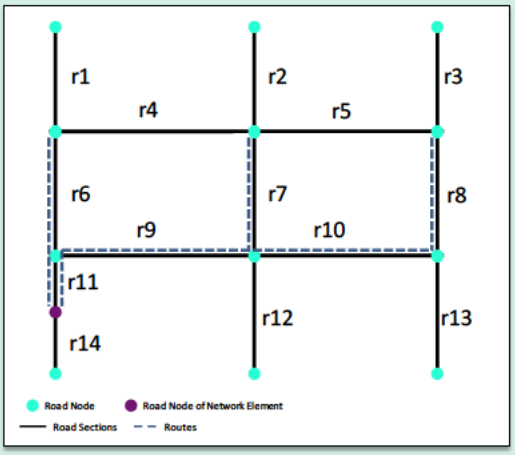
[157] The GeoDirectory information was provided by the DECC at Q2 2019.

[158] Eircom also provided a list of core, backbone and aggregation exchanges, along with the location of all cabinets including those that are NGA enabled.

[159] The term "Final drops" is used for both overhead and underground connections.

5.135 D-Side cable represents the link between the different distribution points located on the road section to the nearest street cabinet. Total 'D-Side demand' for a road section is the combination of the demand on that section and the aggregation of the demand of each section for which the route to the cabinet used the current section.

Figure 9 Methodology to Estimate the total 'Route Demand' of a Road Section



- To calculate the D-Side we take the shortest route (dotted line) for each road segment (in the diagram depicted as a black line and each identified with a label r1..r14)
- Then we sum the number of premises for all the roads using each of the premises. For example, if we assume that every road has 10 premises then r8 will have only 10 premises passing (from r3) but r9 will have 80 premises passing (from r2, r3, r5, r7, r8, r10, r12, and r13)
- For the E-Side the process is similar. The routes are from the cabinet to the exchange and the demand will be the number of premises associated with each cabinet

Note: For E-Side, Leased Lines, and Core we modified the cost values used in the Dijkstra algorithm to increase the re-use of roads sections. The initial value for the cost is set to the road length and decreased successively with the increased of routes using that road section

Source: Cartesian

5.136 Copper and fibre route lengths were estimated for both the 'E-Side' and 'D-Side' of a route. This was used to determine the passive network elements needed to support service delivery in each road section. The average distance from the road section to the premises generated the distance from the distribution point to the premises. The rules in the Passive Dimensioning model were applied to the measurements gathered at that part of the modelling:

(a) Cabinets marked as FTTC-Enabled were routed to their assigned exchanges (on the E-side route).

(b) For Leased Lines, the path length was determined for each given business location to the nearest exchange using the road section network.

(c) The core topology was composed of exchanges, aggregation nodes, backbone nodes, and core nodes. The following methodology was used: core nodes are fully interconnected, backbone nodes connect to two core nodes, aggregation nodes connect to two backbone nodes, and exchanges connect to their aggregation node.

5.137 In the final stage the Geospatial Road Section Model generates a range of outputs for the Passive Dimensioning Model. General Geospatial Outputs contain information at a road section level, including the direct and indirect demand, relevant distances, and information regarding exchange, cabinet, Rural/Non-Rural split, and geographic footprint. Geospatial Splitter Path Outputs contain the path data (road sections) from the splitter location to its assigned exchange with the number of

splitters required for the different topologies (single split versus cascaded splits). Geospatial Exchange Outputs list the exchanges and their parent-child relationships.

The Passive Dimensioning Model

5.138 The Passive Dimensioning model makes use of the Geospatial Road Section Model outputs and applies "Dimensioning Rules" to generate the number of passive elements required per exchange, per service, and per geographic footprint. A database was used to conduct this modelling, in three stages namely dimensioning of passive elements; calculation requirements per geographic footprint; and export the outputs.

5.139 The Passive Element Dimensioning Rules include the following aspects:

(a) passive elements can be 'dimensioned' (quantified in the modelling) on each road section separately and independently;

(b) buildings can be located on either side of a road section. The "major" side of a road section is the one with more premises, and the other side is the "minor";

(c) When the route is underground, the major side will be fully cabled and trenched (end to end), which permits pass through of cables to subsequent road sections. Premises on the major side are connected directly to these cables;

(d) Minor side premises can be connected either directly to the major side trench by digging under the road to reach each premise, or by a trench dug on the minor side which requires only a single dig across a road;

(e) The distribution type (e.g. underground in trenches or overhead on poles) for a road section is determined based on the following rules:

(i) In urban areas, all cables (E-side and D-side) are underground; and

(ii) In rural areas, E-side cables are underground, but D-side cables can be overhead or underground; if the rural road section requires less than 200 pairs it is overhead, otherwise it is underground.

5.140 Engineering rules, detailed in the Specification Document, are also applied to determine the quantity and type of equipment required for the modelled network. ComReg proposed in the Consultation to use the engineering rules set out in Figure 10, to determine minimum cable capacities:

Figure 10 Demand aggregation

Service	E-side	D-side	Final drop
Residential copper	1.1 pairs per premise passed	1.1 pairs per premise passed	1 pair per premise connected
Residential fibre	FTTC 1.1 fibres per cabinet	1.1 fibres per premise passed	1 fibre per premise connected
	FTTH 1.1 fibres per splitter		
Leased lines	2 fibres per leased line		
Core	One 37mm sub-duct per core network line		

Source: Cartesian

5.141 An initial spare capacity allowance of 10% was included applying a 1.1 weighting to the demand per premises/cabinet/splitter. Furthermore, the 'rounding up' of demand into cables (e.g. if, after including the 10% spare capacity uplift, only 30 fibres are needed, the model dimensioned a 36 fibre cable), resulted in additional capacity. Consequently, the total additional cable capacity will be higher than the 10% minimum and was estimated to be 30%.

Ducts, poles and trenches

5.142 On the basis that copper cables do not require sub-ducts, ComReg proposed that sub-ducts are dimensioned for fibre cables only, with the assumption that 75% of each sub-duct area was available for fibre cables. 100mm ducts were assumed to be in use on main roads and that a maximum of four sub-ducts could fit in one duct. The total number of sub-ducts required depended on the total cross-sectional area of the fibre cables and only three of those sub-ducts was available for current use, as the last one was kept free for future use.

5.143 The number of E-Side and D-Side ducts dimensioned along a road section depended on the number of sub-ducts and copper cables that were dimensioned for that road section, with a separate duct reserved for core cables when a road section was part of a core route. It was assumed that each duct could be filled to 75% of its total volume.

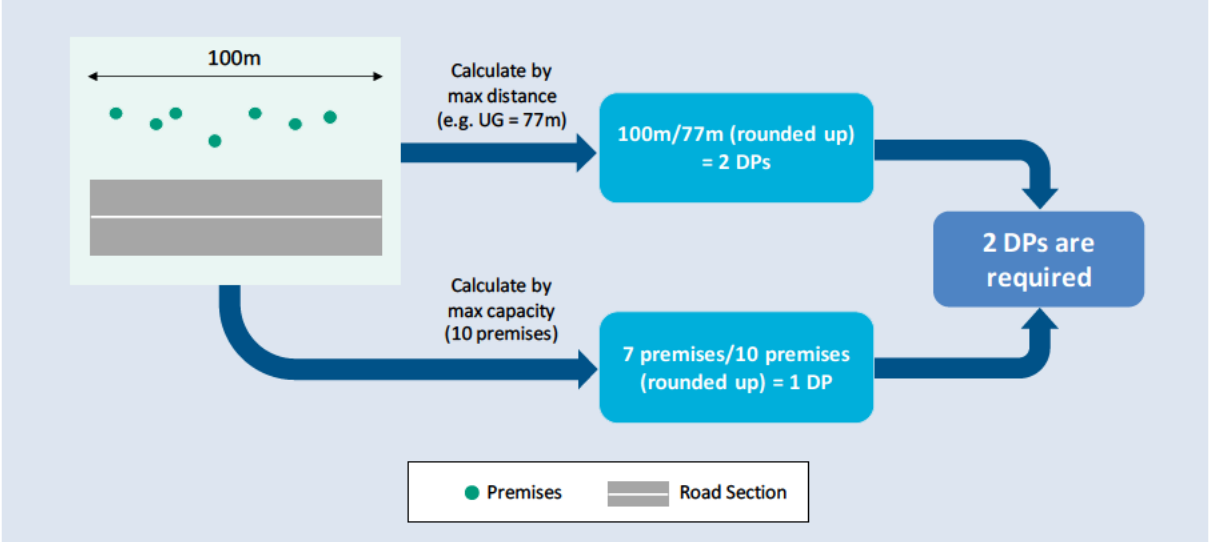
5.144 Poles were assumed to be 50 metres apart along the major side of the road to support overhead cables.

5.145 It was also assumed that trenches were dug to support ducts and were always deployed along the full length of a road section when they were required (e.g. urban settings) and, where needed, an additional trench was also deployed on the minor side. The maximum trench capacity is 12 ducts and if the number of ducts in a trench exceeds 12 then an additional trench was added until sufficient capacity is provided.

Distribution points and final drops

5.146 In terms of distribution points and final drops, it was assumed that copper distribution points can be overhead or underground as required, and that each distribution point can serve a maximum of ten premises. The maximum distance between the DP and the last building it can serve was set at 50m along the pole route if served overhead or 77 metres if served underground; if the distance on the road between the DP and the last building was greater than these limits, a second distribution point was required. The maximum number of distribution points on a road was limited to the number of premises.

Figure 11 Distribution point calculation

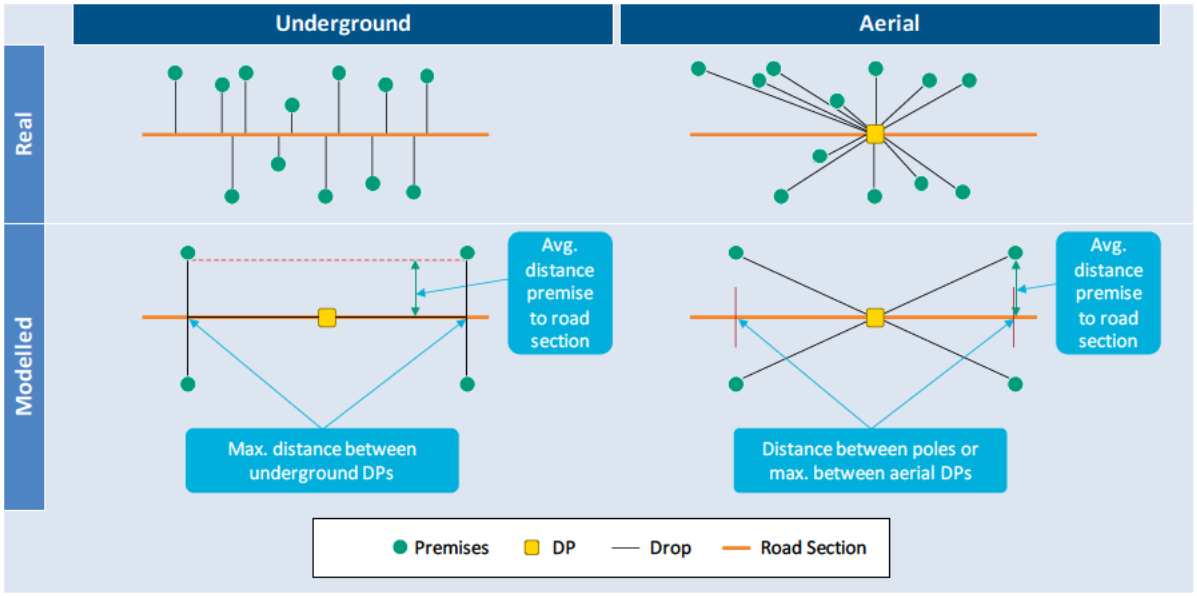


Source: Cartesian

5.147 Similar assumptions were made in respect of fibre distribution points save that it was assumed they could serve a maximum of 12 premises, and underground connections had a limit of 65 metres along the road section, whereas overhead had a limit of 150 metres. Splitters were dimensioned using a single 1:32 ratio splitter, except where the D-Side path exceeds 15km, when a 1:8 primary splitter was used, followed by a 1:4 secondary splitter co-located with the distribution point.

5.148 The distribution and length of the final drop was dependent on whether it was overhead or underground. As the exact position of distribution points was unknown these were estimated, as outlined in Figure 12 below:

Figure 12 Final Drop Distance Calculation Method



Source: Cartesian

Network elements

5.149 Joints were dimensioned at the start of each road section and where cables meet, with further joints placed for each cable every 2250m for fibre cables and 250m for copper cables.

5.150 Chambers were dimensioned on underground routes based on the number of distribution points plus joints, and the length of the road section. A chamber was required for each joint and distribution point location, in cases where joints and distribution points were collocated, only one chamber was needed. A chamber is also required at least every 250m for rural road section, or 150m for urban road section.

5.151 The network dimensioning in the ANM also recognises the extent that different elements can be shared by multiple services. Figure 13 indicates whether a network element was shared across multiple services, and if so, which services were shared. Entries marked with a red cross (✗) use dedicated elements that were not shared with other services. Entries marked with a green tick (✓) share that element with all other services also marked with a tick. Network elements without a cross or a tick were either not relevant to that service, or not dimensioned in the ANM:

Figure 13 Element sharing by services

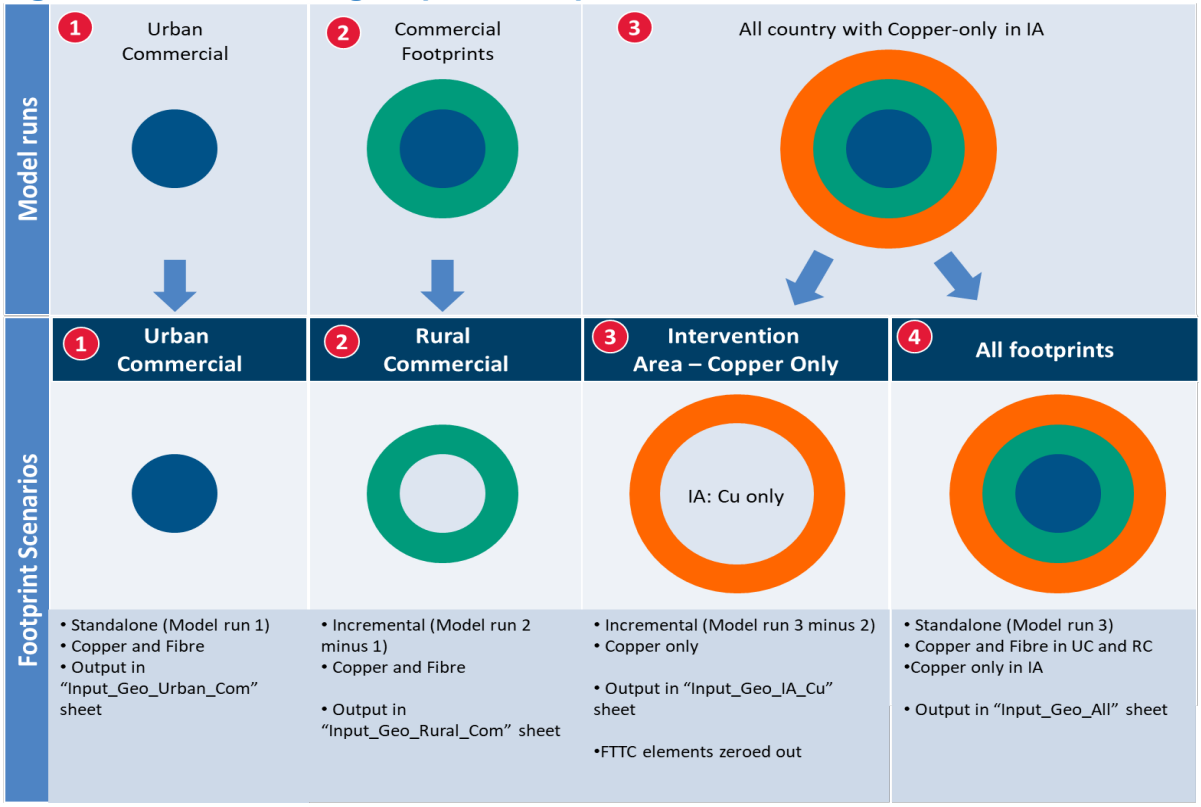
Element	Copper	FTTC	FTTH	Leased Line	Core
Copper Cables	✓	✓			
Fibre Cables		✓	✓	×	×
Distribution Points	✓	✓	✓		
Splitters			×		
Joints	✓	✓	✓	×	×
Main Termination	✓	✓	✓		
Poles	✓	✓	✓	✓	
Chambers	✓	✓	✓	✓	✓
Sub-Ducts		✓	✓	×	×
Ducts	✓	✓	✓	✓	×
Trenches	✓	✓	✓	✓	✓

Source: Cartesian

5.152 In general, elements used by multiple services were first dimensioned as per the dimensioning rules and then apportioned to individual services based on a measure of each service's usage of each element, e.g. the cross-sectional area of cables acted as a proxy for the usage of duct. All copper-based services, such as FTTC and PSTN-WLR share copper cables, and residential services, such as FTTC and FTTH, were assumed to share E-Side fibres cables. However, core services have exclusive use of their own fibre cables and ducts but share trenches.

5.153 The next stage was to determine the network costs based on classifying geospatial outputs into the three footprint scenarios giving rise to four scenarios in total (the 'All footprints' scenario was the aggregation of the other three) as shown in Figure 14.

Figure 14 Definition of geospatial footprint scenarios



Source: Cartesian

5.154 Outputs for the 'All footprint' scenario were sense-checked against Eircom data, where available (e.g. number of poles), and the geospatial outputs were also validated against the outputs produced by the Revised CAM where they could be validated (e.g. the length of copper cables) and the results were consistent.

5.155 The ANM modelled the costs associated with each of the geographic footprints by running the geospatial analysis three times: Urban Commercial, Commercial Footprints and All country with Copper Only in IA. For the 'Urban Commercial' iteration, only the Urban Commercial Area premises are included, although all road sections were still within scope to enable the ANM to traverse road sections on other footprints. The ANM could build copper and fibre to all these premises. The 'Commercial Footprints' iteration adds Rural Commercial Area premises to the Urban Commercial Area premises and built copper and fibre to all the premises in the combined footprint. The 'All country with Copper only in IA iteration' modelled a network capable of serving all premises in the country, including those designated as part of the NBP IA.

5.156 The 'Urban Commercial' iteration provided the standalone network costs of the 'Urban Commercial' footprint, which was used to inform the access network costs inputs into the NGA Cost Model to derive prices for FTTC/EVDSL services as these were sold primarily in the urban footprint. PSTN-WLR and CG SABB were sold in all footprints so the All footprint scenario was chosen to ensure that all costs in an exchange area were considered when setting the prices for these services.

5.157 Finally, the analysis generated outputs for each footprint scenario, with the quantity of each asset described above per Exchange. Each element was apportioned to individual services, except for trenches, ducts and chambers, which are apportioned to the E-Side, D-Side, leased lines and core. This means that the ANM could output the incremental costs associated with different footprints. For example, the incremental costs associated with the 'Rural Commercial' footprint could be derived by netting the 'Urban Commercial' iteration network costs from the 'Commercial Footprints' iteration network costs (section 2 in Figure 14). Similarly, the incremental costs of the NBP IA could be derived by netting the 'Commercial footprint's iteration network costs from the 'All country with Copper-only in IA' iteration network costs (section 3 in Figure 14).

5.5.2 Respondents' views and ComReg's assessment

5.158 Three Respondents (Eircom, BT and Vodafone) provided direct responses to Question 5 of the Consultation on whether the draft Geospatial module was appropriate for dimensioning the access network (copper and fibre) of an HEO with Eircom's network presence in Ireland. Sky and ALTO did not provide a direct reply to Question 5 but ComReg has considered comments made by Sky and ALTO relevant to Question 5. Sky's advisers Analysys Mason have however provided specific comments to this question in its report.

5.159 In summary, Eircom raised issues with the transparency of the tools and methodology used and submitted that ComReg failed to recognise the complexity of multiple demands for individual premises; ComReg modelled unachievable efficiencies in rural areas; and ComReg failed to provide evidence of meaningful calibration with Eircom's actual network. BT generally agreed with ComReg's preliminary views but noted concerns with the level of information available to Eircom compared with that available within the Eircom's CEI Passive Access Records. Vodafone highlighted the need to monitor the footprints on an on-going basis.

5.160 ALTO did not respond directly but made a number of comments regarding issues of the treatment of common costs. Sky did not respond directly but raised a number of concerns with ComReg's proposed approach in the Geospatial module, including ComReg's proposed treatment of common costs and concerns that the inclusion of three classifications of geographic footprints greatly added to the complexity of the modelling in the ANM and was not consistent with market definitions or EU Recommendations. These issues raised by operators in relation to the treatment of common costs have been addressed in Section 5.7 (Opex module). In relation to the complexity of the modelling, this has been addressed in Section 5.3 (preliminary comments).

5.161 Set out in detail below is ComReg's consideration of the Respondents' submissions and the updates made by ComReg, with the assistance of Cartesian Consultants, to

the Geospatial module including for the purpose of addressing the issues raised by Respondents.

5.162 ComReg notes that the development of access models in Ireland dates back to pre-2010 and the ANM follows on previous access costs models including the CAM and the Revised CAM. ComReg does not believe accordingly that requirements for workshops are the same in 2020/2021 as they were in 2016 in terms of operators' understanding of the general costing methodologies underpinning the access network costs models, and in particular that the provision of detailed documentation would meet the need of operators and allow for their in-depth review of ComReg's proposals, better than a workshop could. ComReg increased the level of detail available to operators in the documentation provided on the methodologies and costing approaches used in the ANM, in both the Specification Document and in the Consultation. ComReg has also improved the quality of data available in the confidential versions of the model shared with interested parties, while, as already noted above, allowing those interested parties the opportunity to submit questions and seek clarifications before finalising their responses. ComReg's responses to requests for clarification have been made publicly available in the interests of transparency to all relevant stakeholders.[160]

Multiple services per delivery point

5.163 According to Eircom, it is unclear how the Geospatial module addresses the issue of multiple service demands from an individual delivery point and the "per delivery point" approach risks underestimating the assets used to serve towns and villages.[161]

5.164 However, it is not the case that there is a risk that assets in towns or villages are being under-stated as Eircom claims. This is because assets are dimensioned in the Geospatial module with reference to premises passed rather than connected and the dimensioning rules for E-Side and D-Side copper cables allow for sufficient capacity to cater for the overall level of actual demand on Eircom's access network for the base year in 2019.[162]

5.165 The specific issue of multiple drops per delivery point mainly impacts the costs of final drops and the cabling associated with copper final drops is not derived in the Geospatial module of the ANM, as the ANM does not derive a capital cost for copper connections on the basis that, in the past, Eircom tended to expense these costs and a significant element of the connection cost was recovered through up-front connection charges. Instead of a capital cost based on all connections, the ANM includes an annual connection cost as an Opex cost based on the provisioning Opex

[160] See ComReg Information Notice 20/112, Information Notice 20/116 and Information Notice 20/129.
[161] Paragraphs 67 to 68 of Eircom's Non-Confidential Response dated 8 January 2021.
[162] See paragraph 4.51 of the Consultation's Specification Document for more details on the dimensioning of E-side and D-side copper cables.

recorded in Eircom's recent HCAs with future provisioning costs modelled to trend with the number of active lines on the copper access network.

Network efficiencies

5.166 Eircom accepts in its response to the Consultation that, subject to appropriate calibration, the modified scorched node approach can be a reasonable approach to modelling the access network for urban areas but argues that it is "*potentially problematic for provincial and rural exchange areas*", resulting "*in the modelled network having levels of efficiency that cannot be achieved in reality… existing circuit routes are tied to physical and local planning that not only play a major role in the design of the access network but also impose barriers to change even on a hypothetical basis*".[163]

5.167 It is worth recalling that the network dimensioning undertaken in the Geospatial module is used to support the network cost calculations in the BU scenario, and, as in the Consultation, the BU scenario is primarily used to derive the costs associated with providing services in the Urban Commercial Area footprint. Consequently, the network dimensioning relating to the more rural parts of the network does not impact the costs of the LLU, SLU and NGA link components that are inputted into the NGA Cost Model.

5.168 Additionally, ComReg's advisers Cartesian compared the outputs of the Geospatial module to the inventory of Eircom provided as part of the Revised CAM. With regard to the overall cable length, the Geospatial module using the Modified Scorched Node calculates a total of approximately 127 million metres. Eircom's inventory at the time of the Revised CAM[164] was 135 million metres. Therefore, the values in the ANM's Geospatial module represent a 6% reduction, which ComReg considers is a reasonable efficiency assumption. See more details about the calibration exercise in the paragraphs below (5.172 to 5.179).

5.169 The anchor technology approach in the NGA Cost Model also means that the LLU and SLU cost inputs are not intended to reflect the costs of replicating Eircom's legacy copper network. Instead, the costs are used to inform NGA prices that can act as a reference point to anchor the investment decisions of commercial operators deploying NGA networks in Ireland today.

5.170 This is best achieved by using a Modified Scorched Node approach that assigns premises to the nearest local node even though this can result in the circuit paths being different to the circuit paths for the equivalent lines on the legacy network that Eircom has deployed. Such an approach does result in some efficiencies as connecting premises to the nearest node will tend to result in shorter circuit paths

[163] Paragraph 70 of Eircom's Non-Confidential Response dated 8 January 2021.

[164] Eircom noted, as part of its response to Section 13(D), that the most comprehensive analysis of the copper network was performed as part of the Revised CAM.

than might have been the case when the premises was first served, and the node layout may have been different. However, an operator deploying an NGA network today would also seek to achieve the most efficient network configuration and even the circuit paths on Eircom's FTTH network are not always going to replicate the circuit paths of the existing legacy copper network. Therefore, an FTTH network would be expected to unlock further network efficiencies that are unavailable to a copper-based NGA entrant.

5.171 Furthermore, the Modified Scorched Node approach takes the location of Eircom's existing nodes, such as street cabinets and exchanges, into consideration and it is node location that tends to be most impacted by local planning rules. Local planning rules would have applied to the location of the Eircom nodes and routing nearby premises to those nodes would tend not to give rise to significant planning issues.

Model calibration

5.172 Eircom was critical of the level of calibration undertaken for the ANM "*as it aspires to forecast service demands and calculate investments and unit costs for over 3,000 distinct exchange-regions*".[165]

5.173 Although the ANM includes 1,048 local exchange areas, each of which can comprise up to three footprints, the aim of the BU approach in the ANM is not to provide a precise estimate of the inventory deployed in each of the particular footprints within each exchange area. ComReg recognises that because under the Modified Scorched Node approach premises are assigned to the nearest node, this means that the ANM does not replicate the footprints of Eircom's legacy exchanges. For example, Eircom only recently deployed a local node in the Dame Court exchange in Dublin city centre and the ANM will model a higher line count for this node than Eircom will have actually connected. This is because the ANM assumes that Dame Court serves all nearby premises, whereas most of the premises are served from other Dublin city centre exchanges such as Crown Alley and Ship Street.

5.174 The primary focus on the Geospatial module is to provide an estimate of the assets required in the access network at a national level across each of the three footprints, with particular emphasis on the Urban Commercial Area footprint, as the BU scenario, which relies on the output of the Geospatial module, is used to derive the LRAIC network cost of the VUA related services provided in the Urban Commercial Area footprint. This means that there is little added value in attempting a more detailed calibration exercise at the individual exchange level as, in many cases, the network topography in the ANM will not match Eircom's legacy topography.

5.175 Furthermore, the granular calibration of network assets, such as the calibration of copper cables at a sample of exchanges, that was carried out as part of the

[165] Paragraph 71 of Eircom's Non-Confidential Response dated 8 January 2021.

development of the original CAM, helped provide assurance that its engineering rules were reasonable. However, this level of calibration was not repeated for the Revised CAM as this was an update of the original CAM and used the same engineering rules. Similarly, the ANM is an update that uses very similar engineering rules as the Revised CAM. ComReg is satisfied that in these circumstances, a calibration against the national outputs of the Revised CAM, together with a calibration, where possible, against Eircom's national data, is sufficient to ensure that the ANM provides a reasonable estimate of network asset quantities required by a HEO with Eircom's footprint and node locations.

5.176 The following table provides an example of the calibration of equipment quantities that was undertaken between the ANM, the Revised CAM and the inventory data provided by Eircom. This shows that the count of poles and cabinets in the ANM is similar to Eircom's reported inventory, while the lower cable lengths in the ANM compared to the Revised CAM and Eircom data also seems reasonable in light of the fact that the Modified Scorched Node approach used in the ANM will result in shorter cable lengths due to the routing of premises to the closest node:

Table 9 Comparison of calibration

Area	Network Element	ANM – Draft Consultation	ANM - Decision	Revised CAM	Eircom Inventory
Poles	Poles	1,515,522	1,515,508	1,489,625	[✂ [redacted] ✂]
Ducts	Trenches	27,617,184	27,617,041	25,482,810	[✂ [redacted] ✂]
	Ducts	38,012,798	37,916,562	44,770,801	
	Chambers	406,073	406,073	391,956	[✂ [redacted] ✂]
Street Cabinets	Street cabinets	15,487	15,487	10,497	[✂ [redacted] ✂]
Copper	Cables	126,727,224	126,677,054	139,805,000	[✂ [redacted] ✂]
	Joints	463,366	462,200	242,680	
	DPs	900,168	900,172	736,251	[✂ [redacted] ✂]

5.177 Eircom also referenced the calibration of poles undertaken by Cartesian for the Revised CAM noting that in its advisers' review the Capex module identified 2.4M poles in 2022, compared with the 1.5M poles that are actually in Eircom's network.[166]

[166] Paragraph 72 of Eircom's Non-Confidential Response dated 8 January 2021.

However, the 2.4M figure identified in BRG's review of the Capex module included 1.5M D-side poles and 0.9M Final Drop ('**FD**') poles.

5.178 To clarify the 1.5M poles referred to as D-side poles are also used as Final Drop poles (when required, as the Geospatial module places a pole every 50 metres in the rural roads that can be served aerially). Therefore, ComReg's advisers Cartesian have removed the references to any additional FD poles. For the avoidance of doubt, the final ANM Geospatial module models a total number of poles of 1.515M, which is very similar to the [✂ ✂]M included in Eircom's inventory.

5.179 Eircom also suggested that there should be a TD calibration of the costs produced by the ANM against real costs experienced by Eircom in exchange areas and these should be presented to Eircom for consideration. However, ComReg does not consider that such a calibration is required as the TD costs in the ANM, which are used to inform the majority of pole and duct costs and are also the basis of PSTN-WLR and CG SABB cost modelling, are directly comparable with the cost data provided by Eircom from its Fixed Asset Register[167] and the Geospatial module outputs are only used to attribute Eircom's TD costs to the more granular network elements modelled in the ANM.

Definition of footprints

5.180 Sky raised concerns that the Geospatial analysis was overly complex and concluded that:

"*The genesis of the overly complex modelling approach that was undertaken by ComReg appears entirely grounded in the wholly inappropriate "definitions" ComReg has adopted to drive cost allocations (mainly out of NBP-IA into Urban Commercial services like FTTC). As discussed in great detail in this response these "definitions" are not based on market definition analysis in accordance with the relevant laws and guidance. As such the modelling specifications that Cartesian have been forced to adopt appear to have been driven by prejudicial and erroneous conclusions drawn by ComReg in relation to what constitutes "commercial" and "non-commercial" footprints. Had ComReg adopted an approach to cost allocations in accordance with European Recommendations then much of the complexity (and the associated lack of transparency) evident in the Cartesian model could have been avoided.*"[168]

5.181 ComReg does not accept that the product and geographic dimensions of regulated markets are the only criteria that are relevant to determining the increments for consideration when developing a network cost model, as Sky appears to suggest. ComReg also does not accept that the cost modelling undertaken in the ANM is in any way inconsistent with "European Recommendations" as Sky also appears to

[167] Details by asset class can be found in the "Input_Capex" worksheet, rows 11 to 18.
[168] Paragraph 147 of Sky's Non-Confidential Response dated 8 January 2021.

suggest. Cost models can also include a geographic aspect to the cost modelling, as there are many factors such as population density, network design and topological variations that can vary between geographical areas and impact the costs of service provision in those areas. The geographical approach to network costing undertaken in the ANM model is relatively complex, but is essential to providing the necessary understanding of the network costs associated with services, as well as an insight into how access network costs might evolve over time.

5.182 A significant contributor to the complexity of the costing analysis in the ANM is the consideration of network costs with respect to three geographic footprints. However, each of these footprints addresses specific issues that are relevant to the cost analysis required to inform the setting of wholesale access prices in Ireland today.

5.183 As noted in the Consultation (paragraph 3.32), the Urban Commercial Area footprint corresponds to the area "*where commercial operators are delivering or have indicated plans to deliver high speed broadband services. It is also the footprint where Eircom has deployed FTTC*". The fact that ComReg is setting cost-oriented prices for FTTC based services means that it is critical that the ANM is capable of isolating the network costs associated with the provision of those services.

5.184 Indeed, as part of its response on FTTC pricing to the consultation preceding the 2018 Pricing Decision (ComReg document number 17/26), Analysys Mason and Sky argued that the use of national SLU and LLU inputs as inputs to the NGA Cost model to determine FTTC prices was not reasonable as FTTC services are not available nationwide and the average SLU and LLU line length is likely to be longer in non-NGA areas than in NGA areas and so using a national cost risks over-estimating the costs of FTTC wholesale services.[169] The Analysys Mason Report, that formed part of Sky's response to ComReg Consultation 17/26, proposed that "*an alternative would be for ComReg to define and use VDSL-specific SLU and LLU products as inputs for FTTC VUA and bitstream products*".[170] This is essentially the aim of the ANM geographical approach, which is to model the costs associated with FTTC services, based on the footprint where Eircom have deployed FTTC (the Urban Commercial Area footprint).

5.185 The ANM also attempts to isolate the incremental costs associated with the NBP IA footprint as it is in this footprint that NBI is expected to replace Eircom as the principal wholesale fixed line provider of access services after Eircom switches off its copper access network. The NBP IA footprint is also where, in the years after copper switch-off, Eircom's primary role is expected to be as a CEI access provider to NBI. Consequently, the ANM needs to consider the costs of an HEO that is providing wholesale downstream access services only to premises in the commercial footprints

[169] See paragraph 6.90, 6.93, and 6.124 of the 2018 Pricing Decision.
[170] See paragraph 6.90 of the 2018 Pricing Decision.

that are consistent with the situation where the majority of wholesale downstream access service in the NBP IA are to be provided by the NBP operator NBI.

5.186 Monitoring CEI access also requires an understanding of how the costs of CEI might differ in the NBP IA compared with other footprints, particularly given the fact that Eircom's most recent investment in CEI has been focussed on supporting its own FTTH deployment in the Rural Commercial Area footprint. The fact that the assessment of CEI costs is based on the legacy costs for re-usable CEI and the current costs for replacement CEI means that the average CEI access costs per pole or duct segment will differ between the various footprints due to the different timing of investment in network upgrades in each footprint.

5.187 The ANM also needs to consider how Eircom's costs in the Rural Commercial Area footprint will be affected by NBI's use of Eircom's poles and ducts there, as NBI is expected to use Eircom's CEI to transit the Rural Commercial Area footprint in order to provide connectivity between the various parts of the non-contiguous NBP IA footprint. As NBI's transit access in commercial areas is expected to be concentrated in the Rural Commercial Area footprint, isolating the costs and service demand in the Urban Commercial Area footprint from the costs and service demand in the Rural Commercial Area footprint, also means that any sharing of network costs between NBI and Eircom for NBI's use of Eircom's CEI to transit the Rural Commercial Area footprint will not materially impact the network cost analysis for services, such as FTTC based services, that are not supported by the network in the Rural Commercial Area footprint and, consequently, can be costed using the Urban Commercial Area footprint scenario in the ANM.

5.188 The geo-categorisations in the ANM also recognises that, in the long run, Eircom's supply of downstream wholesale fixed access services to end users will be concentrated in the combined Urban and Rural Commercial Area footprints. This requires that the ANM is able to identify the standalone costs (including direct and indirect network costs and all relevant common costs) associated with a fixed access network capable of serving all the premises that are contained within both commercial footprints.[171]

5.189 Sky also contends that "*the geo-categorisation of premises using ComReg's arbitrary "definitions" of Urban Commercial, Rural Commercial and NBP-IA differed from the Revised CAM classification of "non-commercial" areas. There is therefore a complete disconnect between the Revised CAM and the Cartesian geospatial model in terms of defining these footprints*."[172]

[171] The results for the commercial footprints can be compiled by running the ANM for the Urban and the Rural Commercial Area footprints separately, and then adding the results together.
[172] Paragraph 146 of Sky's Non-Confidential Response dated 8 January 2021.

5.190 Sky made a similar argument in response to the 2020 CEI Pricing Consultation . However, the assertion that ComReg has taken an inconsistent approach to defining areas/footprints in the 2018 Pricing Decision and ANM modelling is incorrect and appears to reflect a misunderstanding on Sky's part that the 2018 Pricing Decision restricted commercial lines to only those served by the maximum 3km local loop lengths that were used to determine the network cost of FTTC services. However, the 2018 Pricing Decision highlighted that:

"*As Eircom's copper network is expected to serve all premises in the country, (which Eircom estimates to be 2.35m), the customer base that can be served by its FTTC/EVDSL network is limited to those customers that are relatively close to a DSLAM (a sub-set of approximately 1.6m of the national premises)* ***with a further sub set of customers served by FTTH in the rural 300k network. Consequently, Eircom is passing 1.9m out of 2.35 premises with an NGA service***." (emphasis added) [173].

5.191 As a result of these considerations, the Revised CAM applied a maximum 3km local loop length to set the boundary of the network costs relevant to the 1.6M premises that can be served with FTTC/EVDSL, but the commercial line base that was used to derive unit costs in the 2018 Pricing Decision also included all the lines to the premises where Eircom provided a commercial NGA service, which included those premises that were passed by Eircom's rural FTTH network, as should be clear from the following passage:

"… *as the NGA Cost Model seeks to derive the costs relevant to serving customers in this commercial footprint, ComReg is of the view that it is no longer appropriate to derive the unit costs for the SLU and LLU inputs with reference to the entire customer base in an exchange area as was the case in the Revised CAM in the 2016 Access Pricing Decision. Instead, the unit cost inputs for use in the NGA Cost Model for FTTC/EVDSL cost modelling are adjusted to reflect the standalone costs of the network required to pass the customers within the footprint that can be targeted by these services and to recover those costs* ***specifically from the customer numbers that can avail of a commercial NGA service. This scale adjustment is derived with reference to the number of premises that are being targeted with commercial NGA services compared with the total number of premises nationally.***

ComReg has applied a scale adjustment to the unit costs that are calculated in the Revised CAM to recognise the fact that Eircom's NGA network is targeting a more limited line base. ***This scale adjustment has been determined as approximately***

[173] 2018 Pricing Decision, paragraph 6.45.

1.9/2.35 = 80% to be consistent with the share of the national premises that are being passed by Eircom's NGA network." (emphasis added)[174].

5.192 Given that ComReg recognised that Eircom was passing 1.6M premises with FTTC and a further 0.3M with its Rural FTTH network, the classification of 1.9M premises in the commercial areas that applied to the Revised CAM outputs used to cost FTTC services in the 2018 Pricing Decision was based on the availability of a commercial NGA service, and that this includes the premises passed by Eircom's Rural FTTH deployment.

5.193 Eircom's Rural FTTH deployment is consistent with the Rural Commercial Area footprint modelled in the ANM and there is no disconnect between the Revised CAM classifications of commercial areas and the classifications in the Geospatial module in terms of defining the three footprints. The Urban Commercial Area and Rural Commercial Area footprints in the ANM correspond to the areas where Eircom offers a commercial NGA service and the NBP IA footprint corresponds to the area covering the remaining 20% of premises that are served by the NBP.

5.194 In relation to the Rural Commercial Area footprint, the Analysys Mason report notes that paragraph 4.19 of the Consultation's Specification Document lists 281k premises in the Rural Commercial Area footprint, which "*significantly understates*" the 342k premises indicated in the Commitment agreement between Eircom and DECC. Analysys Mason conclude that "*We believe that the majority of the discrepancy in numbers will be IA area premises, which will result in a greater sharing of common and commercial costs according to ComReg's methodology*."[175]

5.195 The number of premises in the Rural Commercial Area footprint is consistent with Eircom's Commitment agreement, and the reason for the observed difference is that the ANM uses Eircodes to establish the location and number of premises, whereas the Commitment agreement refers to Delivery Points when quantifying premises. This point was addressed in footnote 27 of the Consultation's Specification Document: "*DECC, in their public documentation, uses a field from the Geodirectory dataset called Delivery Point as the definition of 'premises'. Using Eircodes or Delivery Points leads to a difference of ca. 190k premises for the country (2.204m Eircodes vs 2.391m Delivery Points). We believe that using Eircodes is a sensible approach to estimate network deployment costs, and is in line with the industry (data we received from Irish operators in order to process the Geospatial module uses Eircodes, as it can be seen in paragraph 4.19)*"

5.196 Consequently, ComReg can confirm that there is no understatement of premises numbers in the Rural Commercial Area footprint or overstatement in the NBP IA footprint. ComReg is aware that a premise with a single Eircode can have more than

[174] 2018 Pricing Decision, paragraph 6.216.
[175] Section 5.5.2, page 56 of the Analysys Mason Report.

one delivery point (e.g. a premise can be a family home and a B&B) but, as Eircodes are used by network operators to reference premises and locations, Eircodes are the appropriate method to geographically assign premises to footprints and to estimate network routing costs.

Cable dimensioning

5.197 The Analysys Mason report also makes a number of points in respect of cable dimensioning in the Geospatial module and contends that the approach used to define road segments can lead to an overstatement of costs for the Urban Commercial Area footprint, on the basis that the ANM defines a road segment as being urban or rural according to the majority number of premises attached to the road. As a result, "*some long road segments which head out of a town and into the countryside will be classified as urban and paid for entirely by the urban households (through the standalone UC footprint), even though the majority of the road length (and its cost) are to reach RC households further out of town*."[176]

5.198 Analysys Mason points out that this issue can be compounded by the assumption that transition road sections are always set to underground, whereas the rural section of the route could, in fact, be overhead. The approach can also overstate the size of cables as it assumes that cables are deployed along the entire section of the road, whereas an "*efficient design would use tapered cables, the capacity of which decrease as they move away from the exchange or from the street cabinet, particularly in areas where cables pass by urban premises at the edge of town out to the rural area premises*".[177]

5.199 ComReg accepts that these observations have some merit, but having analysed the data with Cartesian, ComReg is satisfied that the impact is immaterial. Having analysed the length of road sections for each footprint; the average length of the Urban Commercial Area road sections is 130m, 330m for the Rural Commercial Area and 420m for the Intervention Area. Over 98% of the Urban Commercial road sections are shorter than 500m. Therefore, it is very unlikely for road sections classified as Urban Commercial to be used to connect an urban town to a nearby village. Accordingly, we conclude that the approach used to define road segments does not lead to a material overstatement of costs for the Urban Commercial Area footprint in the ANM.

5.200 Analysys Mason is also incorrect in asserting that the costs of these routes are "*paid for entirely by the urban households (through the standalone UC footprint)*".[178] In fact, any potential over-dimensioning of cable routes for the Urban Commercial Area footprint in the Geospatial module is mitigated in the ANM through the inclusion of

[176] Section 5.2.3, page 57 of the Analysys Mason Report.
[177] Section 5.2.4, page 57 of the Analysys Mason Report.
[178] Section 5.2.3, page 57 of the Analysys Mason Report.

'overlap' parameters (Input parameters 19a and 19b) in the Capex module that recognises that some cable routes in the Urban Commercial Area footprint also act as feeder routes into the Rural Commercial Area footprint. These parameters are intended to ensure that the service volumes in the Rural Commercial Area footprint contribute to the recovery of the costs of all cable routes (E-Side and D-Side) in the Urban Commercial Area footprint that ultimately serve premises in the Rural Commercial Area footprint. Consequently, the costs of routes that transition from the Urban Commercial Area footprint into the Rural Commercial Area footprint are recovered from the service volumes in both footprints.

5.201 Analysys Mason also argues that the costs of transition routes can be further overstated, due to the dimensioning rules adopted in the ANM. The Analysys Mason report refers to Figure 27 in the Consultation's Specification Document, which notes that road sections are only assigned an Overhead Distribution Type if they are fully covered by the Ordinance Survey Rural Area polygons and a section that transitions between an urban and a rural polygon is dimensioned as being underground. Analysys Mason concludes that this means the cable deployments on the transition sections between the Urban and Rural Commercial Area footprints are set to underground, thereby increasing the cost above that required for rural overhead cables, even though a significant section of the route is only required to serve the premises in the Rural Commercial Area footprint.[179]

5.202 However, further analysis conducted by Cartesian finds that this has no material impact, on the basis that out of all the road sections in the country, 99% are either fully covered by the Ordnance Survey Urban Area polygons, or not covered by these Urban polygons at all. Therefore, only 1% of road sections are transition roads, where only part of the road section is covered by the Urban polygons. In addition, these transition road sections have an average length of just 190m, which means that they are unlikely to be used to connect an urban town to a nearby rural village.

5.203 Analysys Mason also notes that capacity of cables deployed along the length of a road segment is related to the total number of premises attached to the road segment. However, the number of premises that are included in the cable dimensioning algorithm is dependent on the selected footprint scenario. For example, in the Urban Commercial Area scenario, cables are dimensioned to serve Urban Commercial Area premises only, with the result that smaller capacity cables are deployed compared to the other scenarios, where the Rural Commercial Area and Intervention Area premises along the route are also included to dimension the cables. Consequently, some cable routes can be overhead in the Urban Commercial Area footprint scenario but deploy underground in the Rural Commercial scenario, if the inclusion of the Rural Commercial Area premises that are ultimately served by that route means the required cable capacity on the road section exceeds 200 pairs. This

[179] Section 5.2.3, page 57 of the Analysys Mason Report.

is evident in the ANM by the fact that, in some exchanges, the incremental aerial cable numbers in the Rural Commercial Area footprint are negative as there are fewer aerial cables deployed when the model is run to include the Rural Commercial Area footprint compared with when the model is run just for the Urban Commercial Area footprint.

5.204 Consequently, in respect of the cable dimensioning observations raised by Analysys Mason in relation to the cabling of road segments between the Urban and Rural footprints, ComReg does not consider that these warrant a revision to the approach to cable dimensioning taken in the Geospatial module, as they are already mitigated by the use of the overlap parameters in the Capex module and by the fact that cables are dimensioned in the Geospatial module with reference to premises passed in each specific scenario.

5.205 Analysys Mason also considered that the dimensioning of cable pairs leads to overstated costs, as demand is declining on the copper network as is soon to be shut down, and that the copper network does not need to be over dimensioned like FTTH.[180]

5.206 However, as discussed in the subsection on Service Demand, an anchor technology approach to copper access modelling is now adopted for the BU Scenario. This provides greater consistency with the anchor technology approach adopted in the NGA Cost Model and also means that the issue of copper switch-off does not arise in the Urban Commercial Area footprint scenario used to provide the cost inputs into the NGA Cost Model.

5.207 The Analysys Mason report also raised a concern with the fact that the ANM allows for an additional 10% capacity to be included in the dimensioning rules for E-Side and D-Side cables. The Analysys Mason report argues that this 10% uplift is unnecessary as sufficient spare capacity already exists when the capacity required to serve rural and urban premises is considered.[181] ComReg has reviewed the dimensioning rules and removed the 10% uplift when dimensioning the E-side cables in recognition of the fact that an increasing number of services are delivered as Standalone FTTC and therefore do not require use of E-side cables.

Other Issues

5.208 BT generally agreed with ComReg's preliminary views and noted that the logic of the approach taken to dimension assets in the Geospatial module made sense and there is a similarity with previous ComReg models. BT also thought that it was unclear if

[180] Section 5.5.6, page 71 of the Analysys Mason Report.
[181] Section 5.2.4, page 57 of the Analysys Mason Report.

the dimensioning rules for final drops and sub duct were consistent with observed practice.[182]

5.209 BT were not sure about the numbers referred to in Table 10 of the Consultation based on the use of two pair final drops to provide copper-based services to customer premises reflecting historic convention in the provision of two pair copper. However, as noted in paragraph 5.165, the cost of historic connections has not been derived as a capital cost using Geospatial data in the ANM.

5.210 BT also raised a concern with the dimensioning of sub-duct. The required quantity of sub-duct in the ANM is based on the assumption that, on average, 75% of the sub-duct can be filled with cables.

5.5.3 Conclusion

5.211 Having considered the Respondents' submissions, ComReg remains of the view that the Geospatial module, as consulted on in Section 5.4 of the Consultation, is a reasonable basis to determine the quantity of network assets required to provide access services in various parts of the network using a BU scorched node approach, save that the dimensioning rules have been amended to remove the 10% uplift when dimensioning the E-Side cables as discussed above.

5.212 The Geospatial module as outlined in the Consultation has been finalised on this basis and the amendments made are reflected in the prices set out in Section 7.

5.6 PAM/DAM modules

5.213 The PAM/DAM modules calculate the costs associated with poles and ducts. Section 5.6 of the Consultation introduced the PAM and DAM modules and explained how they interact with the ANM, directing stakeholders to the 2020 CEI Pricing Consultation, which contained the details related to the PAM and DAM modules.

5.214 While ComReg had envisaged that the detail of its consideration of the PAM and DAM would also be set out in its final decision in respect of CEI Pricing, following the serious doubts expressed in the EC CEI Comments Letter of 19 November in relation to the 2021 Draft CEI Pricing Decision, on 10 December 2021, ComReg formally withdrew its notification. As a result, ComReg will not accordingly proceed with adopting the 2021 Draft CEI Pricing Decision in parallel with this ANM Decision or otherwise amend Decision D10/18 in respect of CEI prices.

5.215 The modelling of pole and duct costs in the PAM and DAM informs the cost stacks for services in scope of this Decision, and it is accordingly necessary for the purpose of this Decision to consider here the position set out on these matters in the

[182] Pages 5 and 6 of BT's Non-Confidential Response, dated 8 January 2021.

Consultation and the 2020 CEI Pricing Consultation, and Respondents' Submissions in respect of both consultations as relevant.

5.216 As explained in both the Consultation and the 2020 CEI Pricing Consultation, ComReg's approach to determining the level of CEI costs has been informed by the expected large scale of the CEI access for the NBI's MIP. ComReg explained in particular that it was necessary to eliminate from the charges for Eircom's wholesale access services, other than Pole and Duct access, the contribution to cost associated with NBI's MIP's CEI access, so to avoid the potential over-recovery of CEI costs from downstream services that share this CEI. That contribution in turn was calculated on the basis of the cost sharing / pricing methodologies set out in the 2020 CEI Pricing Consultation, namely, in summary, LRAIC in NBP IA (excluding accordingly common corporate costs) and LRIC in the Commercial Areas. ComReg calculated then the total cost annuities for poles and ducts in each footprint net of NBI's MIP's modelled contribution, and this quantum of net costs was included in the ANM Capex module to be recovered through the suite of ANM access services other than Pole and Duct access.

5.217 While the approach followed in the PAM and DAM to determine the quantum of costs means that the latter is dependent on the cost contribution expected of NBI's MIP, given that NBI demand will in all likelihood be concentrated in the NBP IA, and to a much lesser degree, in the Rural Commercial Area footprint, changes to NBI's MIP's contribution to cost recovery are not expected to have any material impact on the cost oriented prices for the services priced in this Decision. This is because the costs that are relevant to services such as FTTC, LLU and SLU, are costs in the Urban Commercial Area footprint, rather than the footprint (in particular the Intervention Area) which NBI's MIP is expected to cover (and thereby to make a cost contribution). As a result, the impact of the quantum of NBI's cost contribution on the prices for fixed services other than CEI is limited to the amount of contribution to common costs expected of NBI's MIP factored in by ComReg to avoid double recovery of common costs, as outlined further below in paragraph 5.510. Similarly, ComReg does not consider that over the price control period demand from other Access Seekers for CEI Access will reach a level in the Urban Commercial Area footprint that would materially impact on the costs to be recovered from these services.

5.218 Below, ComReg sets out its assessment and final position on the points submitted by Respondents to the 2020 CEI Pricing Consultation, which are relevant to the PAM/DAM modules of the ANM and to the extent that they inform the cost of services and the prices set by this Decision.

5.6.1 Costing principles for Reusable and Non-Reusable CEI assets

Position set out in the Consultation

5.219 In Section 5.5 of the 2020 CEI Pricing Consultation ComReg considered how the reusable and non-reusable CEI assets should be valued in order to determine the appropriate costs for access to Eircom's CEI.

5.220 For Reusable CEI Assets, ComReg was of the preliminary view that Reusable CEI Assets should be valued based on a regulatory asset base ('**RAB**') and set by reference to Eircom's HCAs. ComReg considered that the definition of reusable civil engineering assets used in the 2016 Access Pricing Decision continued to be relevant in the context of CEI and so reusable civil engineering assets should include duct, trenches, poles and chambers, which can be reused for the rollout of NGA services ('**Reusable CEI Assets**'). ComReg noted that the 2013 EC Recommendation defined reusable civil engineering assets as:

"*…those legacy civil engineering assets that are used for the copper network and can be reused to accommodate an NGA network.*"

5.221 ComReg recognised that CEI assets are both very costly to deploy and have long life-times which means that their duplication is generally avoided — as such parallel networks may not be appropriate from an economic efficiency perspective, although they are not precluded. Therefore, facilitating joint use of existing infrastructure is generally more economically efficient and ensuring recovery of costs becomes the key objective.

5.222 Paragraph 34 of the 2013 EC Recommendation sets out that the Reusable CEI Assets should be valued on the basis of a RAB approach derived from the SMP operator's accounts.

5.223 ComReg proposed that for Reusable CEI Assets, it would carry forward the valuation method used in the 2016 Access Pricing Decision. This approach based the valuation of Eircom's Reusable CEI Assets on Eircom's accounting Net Book Value ('**NBV**') directly taken from its HCAs and projected the NBV forward by including an allowance for future investment in related network assets over the price control period. Furthermore, the Reusable CEI Assets in the 2016 Access Pricing Decision were valued based on the NBV from Eircom's HCAs and depreciated over the remaining lifetime of the asset by applying a tilted annuity formula which uses as a parameter the asset price index – this approach was referred to in the 2016 Access Pricing Decision as '*Eircom's Indexed Regulatory Asset Base (RAB)*'. ComReg used an asset specific price index (as part of the tilted annuity formula) instead of the retail price index (as suggested in the 2013 EC Recommendation) which should ensure that regulated prices follow the evolution of network asset prices. In any event, ComReg considered that the effect was not likely to be material.

5.224 ComReg considered that by using the RAB approach proposed, the more CEI assets (duct and poles) that Eircom replaces the greater the increase in the actual costs recorded for CEI in Eircom's HCAs. Furthermore, it is also the case that the more Eircom replaces in terms of CEI (either by way of replacing older poles or clearing duct blockages), the greater is the proportion of its CEI network which becomes reusable for NGA.

5.225 ComReg also recognised that the RAB approach for Reusable CEI Assets (set by reference to Eircom's regulatory accounting values from its HCAs) ensures that Eircom is not recovering more than it has invested in reusable infrastructure assets while allowing other operators to access this CEI at an efficient price level. ComReg also believed that this approach should facilitate strict cost recovery for those Reusable CEI Assets while taking utmost account of paragraph 34 of the 2013 EC Recommendation.

5.226 For Non-reusable CEI Assets, ComReg was of the preliminary view that Non-reusable CEI Assets should be valued on the basis of a RAB approach based on replacement costs with reference to the estimated level of investment expected from Eircom and NBI.

5.227 ComReg included among non-reusable civil engineering assets, all ducts, trenches, poles and chambers which cannot be reused for NGA without further investment by Eircom (the '**Non-reusable CEI Assets**'). ComReg noted that the nature and scale of this upfront investment will tend to be dependent on the condition of the existing assets. For poles the majority of such investment will relate to the replacement of existing poles that are considered unsafe or otherwise unfit for the deployment of new cables, while investment in underground ducts can be required to repair faulty infrastructure or clear congested sections and blockages so that sub ducts can be deployed to accommodate new fibre cables.

5.228 Paragraph 33 of the 2013 EC Recommendation specifies that the calculation of wholesale access prices should be based on a RAB approach using replacement costs, except for Reusable CEI Assets. Furthermore, paragraph 31 of the 2013 EC Recommendation specifies that a BU-LRIC+ costing methodology should be used to determine the replacement / current costs.

5.229 ComReg proposed accordingly to continue to value the Non-reusable CEI Assets based on a RAB approach using replacement costs, which is consistent with paragraph 33 of the 2013 EC Recommendation.

5.230 ComReg also recognised that with better information now available to it, compared to 2016, it could project the level of investment in CEI that Eircom can be expected to undertake each year as FTTH networks are extended to pass every premises in Ireland, based on Eircom's planned FTTH overlay in the Urban Commercial Area and on NBI's fibre rollout in the NBP IA. Furthermore, ComReg proposed that the

cost estimates for future investment in CEI can also be informed by Eircom's experience in the Rural Commercial Area for its 300k FTTH Rural Network, updated to reflect the latest available information on equipment and contractor costs associated with CEI deployment in Ireland.

5.231 In the 2020 CEI Pricing Consultation ComReg pointed out that all the CEI routes where Eircom has recently deployed FTTH can now be classified as 100% reusable for NGA. As a result, the full costs of Eircom's RAB on these routes can be determined by the value of these assets as derived by a full (100%) TD valuation of these assets as recorded in Eircom HCAs for year ended 30 June 2019[183].

5.232 ComReg also noted that it expects the recorded investment in CEI in other parts of Eircom's network to increase as Eircom actively replaces / upgrades CEI either to facilitate its own overlay of FTTH in the Urban Commercial Area or for upgrades to its CEI network in the NBP IA so as to facilitate the deployment of NBI's FTTH network over the next 7 years.

5.233 As a result, the estimated percentages used in the 2016 Access Pricing Decision for the assumed replacement rates for CEI assets i.e., 8% for poles and 5% for duct based on BU-LRAIC+ costs, can now be updated to reflect the estimated level of CEI investments that Eircom is expected to undertake each year to support its FTTH rollout as well as NBI's expected fibre deployment plans in the NBP IA.

5.234 ComReg invited the views of respondents (in Question 4 of the 2020 CEI Pricing Consultation) on the proposed costing principles for Reusable CEI Assets and Non-reusable CEI Assets.

Respondents' Views and ComReg's Response

5.235 ComReg received a direct response to Question 4 of the 2020 CEI Pricing Consultation from four Respondents, namely Eircom, NBI, Vodafone and ALTO. BT[184], Virgin Media[185] and Siro[186] stated that they had no comments on the proposed costing principles for Reusable CEI Assets and Non-reusable CEI Assets and Sky did not address the issues raised in Question 4 in their general response.

5.236 Vodafone[187] and Eircom generally agreed with ComReg's proposed approach for valuing Reusable CEI Assets and Non-reusable CEI Assets, although Eircom commented that it is not generally possible to establish in advance which assets will

[183] The 2013 EC Recommendation defines the 'Regulatory accounting value' as "the value of an asset as recorded in the audited regulatory accounts of an undertaking which considers actual utilisation and lifetimes of the assets, which are typically longer than those recorded in statutory accounts and which are more in line with technical lifetimes".

[184] Page 7 of BT's Non-Confidential Response dated 18 November 2020.

[185] Page 3 of Virgin Media's Non-Confidential Response dated 18 November 2020.

[186] Page 4 of Siro's Non-Confidential Response dated 18 November 2020.

[187] Page 7 of Vodafone's Non-Confidential Response dated 18 November 2020.

be reused and which will not.[188] Eircom claimed that there is an inconsistency between ComReg's approach to setting the RAB for the Reusable CEI Assets compared to the approach recommended in the 2013 EC Recommendation.[189] NBI considered that the values for poles and ducts in the NBP IA should be calculated specifically for the IA and not based on a national average CEI valuation and that reusable assets in the PAM and DAM should be revalued to reflect its earning potential in the counterfactual case where there is no NBP or where Eircom's CEI is not used by the NBP provider.[190]

5.237 Eircom commented also on the pole replacement rate for the NBP IA, which ComReg has considered later in paragraphs 5.356 to 5.359. ALTO called on ComReg to assess the scale of historical under-investment by Eircom, which is addressed at paragraphs 5.334 to 5.345.

Impairment adjustment to Eircom's CEI in the NBP IA

5.238 NBI suggested that for the purposes of calculating an appropriate start-point for the valuation of reusable assets in the PAM and DAM, Eircom should be required to revalue the relevant CEI infrastructure based on its earning potential.[191] NBI's advisors, Frontier Economics, claimed that the opening RAB in the NBP IA should reflect the cost that Eircom would expect to recover from that area in the 'counterfactual scenario', absent NBP deployment. Frontier Economics submitted that the value of Eircom's future cashflows could be considered as the future cashflows from continuing to operate its copper network in the NBP IA, prior to the NBP tender. Given this, Frontier Economics considered that if the discounted future cashflows generated by operating in the NBP IA was less than the NBV of the CEI assets calculated by applying straight-line depreciation, then it would be appropriate to apply an impairment adjustment.[192] Frontier Economics suggested that ComReg should consider whether its approach provides a reasonable opening valuation for the CEI assets in the NBP IA, or whether it would be more appropriate to apply an impairment adjustment to reflect the expected value that Eircom would have generated, absent the NBP, from continuing to operate a copper network.[193]

5.239 ComReg does not agree that an impairment adjustment is appropriate for Eircom's CEI asset base in the NBP IA. In the NBP IA, ComReg recognises that the deployment of NBI's FTTH network will ultimately lead to Eircom switching off its copper network with the prospect that NBI will emerge as the sole user of Eircom's CEI in this area. However, when considering whether an impairment adjustment to

[188] Paragraph 104 of Eircom's Non-Confidential Response dated 18 November 2020.
[189] Paragraphs 136-138 of Eircom's Non-Confidential Response dated 18 November 2020.
[190] Pages 25/26 of NBI's Non-Confidential Response dated 18 November 2020.
[191] Page 25 of NBI's Non-Confidential Response dated 18 November 2020.
[192] Page 20 of Frontier Economics Non-Confidential Report dated November 2020.
[193] Page 21 of Frontier Economics Non-Confidential Report dated November 2020.

the opening value of Eircom's CEI assets might be appropriate, ComReg must recognise the need to maintain consistency with past regulatory decisions, particularly when those decisions have determined the level of costs that Eircom has been able to recover to date.

5.240 To date, PSTN WLR and CG SABB have been the primary downstream services that Eircom has provided using its poles and ducts in the NBP IA. ComReg recognises that, absent Eircom's role as a CEI provider to NBI's MIP, this CEI could become stranded once Eircom switches off its copper network. In the 2016 Access Pricing Decision ComReg imposed a cost oriented price for PSTN WLR based predominantly on the TD national annual costs[194] (adjusted for efficiencies) which Eircom incurred in providing the WLR service, reducing Eircom's PSTN WLR price from €18.02 to €15.91 (price for 2016/17). Those annual costs included the annualised costs of Eircom's CEI assets derived using a straight-line depreciation approach based on the regulated asset lives for CEI, which ComReg determined in ComReg Decision D03/09 (the '**2009 Asset Lives Decision**')[195]. This decision extended the pole asset life from 15 to 30 years and the duct asset life from 20 to 40 years to more closely align with the average economic life of these CEI assets.

5.241 Extending the asset lives in this way reduced the annualised costs for CEI in Eircom's HCA and in the cost models used to set cost-oriented prices, resulting in lower cost-oriented prices for PSTN WLR and other wholesale access services as determined in the 2016 Access Pricing Decision than would have been derived using the shorter CEI asset lives. This has also meant that the NBV for CEI in Eircom's HCAs is higher than the equivalent NBV in Eircom's Statutory Accounts, where the original asset lives of 15 years for poles and 20 years for ducts are used.

5.242 Hence, for the reasons set out above, ComReg does not agree that an impairment adjustment is appropriate.

5.243 NBI also submitted that as CEI in the NBP IA has not been remediated by Eircom to the same extent as that in the Commercial Areas it will generally be older, have lower initial investment and greater accumulated depreciation. Accordingly, the value per pole and for duct should be calculated specifically for the NBP IA as a national average pole or duct cost/valuation may result in the base including assets which are fully depreciated at the wrong valuation.[196]

5.244 In response to NBI's point, ComReg considers that modelling costs for 3 different footprints (as is the case in the PAM and DAM) is consistent with the issue raised by NBI as the CEI costs in each footprint is informed by the timing of Eircom's historic

[194] The line card was based on a BU-LRAIC+ valuation.
[195] ComReg Document No 09/65 - Response to Consultation Document No. 09/11: Review of the regulatory asset lives of Eircom Limited, dated August 2009.
[196] Page 25 of NBI's Non-Confidential Response dated 18 November 2020.

and planned investments. For example, Eircom's CEI investment since 2016 has been concentrated in the Rural Commercial Area to coincide with Eircom's Rural 300k FTTH deployment and the cost modelling approach (discussed in more detail at subsection 5.6.3) assumes that all CEI is 100% NGA ready in the Rural Commercial Area by 2019. In contrast, the CEI models (PAM and DAM) recognise that CEI investment in the Urban Commercial Area and the NBP IA footprints is scheduled to ramp-up in the near future as Eircom's deploys FTTH in the Urban Commercial Area as part of Ireland's Fibre Network ('**IFN**') and invests in the NBP IA to provide CEI access to NBI's MIP. Furthermore, as noted in paragraph 381 of the 2020 CEI Pricing Consultation, ComReg has made the assumption in the DAM that the residual duct specific NBV observed in the FAR is related to duct build or renewal in Commercial Areas as ComReg could find no evidence of investment in duct infrastructure since 1990 in the rural areas comprising the NBP IA.[197] In the case of poles, ComReg noted in paragraph 379 of the 2020 CEI Pricing Consultation that it would be reasonable to expect the age profile of the pole network not to vary significantly by geographic footprint and ComReg has no objective basis to change its assumption of modelling the residual FAR based on a national average.

Reuse of poles in Rural Commercial Area

5.245 Eircom stated that poles in the Rural Commercial Area footprint should not be assumed to be 100% reusable as proposed by ComReg in paragraph 310 of the 2020 CEI Pricing Consultation and that in the medium to long run, a proportion of these poles will need to be replaced. According to Eircom, ComReg must allow for some element of forward-looking future capex to be priced into the replacement of that infrastructure.[198]

5.246 To clarify, the PAM has allowed for future capital costs associated with ongoing business as usual ('**BAU**') pole replacement in the Rural Commercial Area footprint, as set out in paragraph 5.292. Hence, for poles the future capital costs in the Rural Commercial Area footprint in the PAM takes into account the ongoing pole replacement as a result of pole testing programmes by Eircom and pole replacement as a result of storm damage or other incidents.

[197] It should be noted that Eircom's information is recorded at an exchange level, not based on geographic footprint, and so it could differ.
[198] Paragraph 112 of Eircom's Non-Confidential Response dated 18 November 2020.

Consistency of approach with 2013 EC Recommendation

5.247 Eircom suggested that ComReg must adjust the initial NBV for Reusable CEI Assets in order to be consistent with paragraph 35[199] and paragraph 36[200] of the 2013 EC Recommendation, so that the indexation method would be applied to calculate current costs for the RAB of reusable legacy civil engineering assets.[201]

5.248 To clarify, and as recalled above, the RAB valuation approach applied to Eircom's Reusable CEI Assets as proposed in the Consultation is a continuation of the approach adopted in the 2016 Access Pricing Decision for determining the existing prices for access to CEI, LLU / SLU and for PSTN WLR.

5.249 As part of the 2016 Access Pricing Decision ComReg considered that the example of a retail price index used by the European Commission in the 2013 EC Recommendation would inflate Eircom's accounting NBV and could result in an over recovery[202] of costs by Eircom and possibly higher prices. However, the heavily depreciated nature of much of Eircom's CEI (prior to 2009 the asset life for poles was 15 years and for ducts was 20 years) combined with the impact of holding gains and the lower WACC rate on annualised costs indicates that any over recovery would not be material. Nonetheless, ComReg decided to take Eircom's accounting NBV directly from its accounts and project the NBV forward by including an allowance for future investment in related network assets over the price control period. This approach ensured that for Reusable Assets Eircom would not be recovering more than what they were investing in network infrastructure while allowing other operators to access this non-replicable infrastructure at an efficient price level. ComReg considered that this approach should also facilitate strict cost recovery for the Reusable Assets.

5.250 As a result, the Reusable Assets in the 2016 Access Pricing Decision were valued based on the NBV from Eircom's accounts and depreciated over the remaining lifetime of the asset by applying a tilted annuity formula which uses as a parameter the asset price index. In addition, ComReg depreciated the NBV over the remaining

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[199] Paragraph 35 states "*In the recommended costing methodology the Regulatory Asset Base (RAB) corresponding to the reusable legacy civil engineering assets is valued at current costs, taking account of the assets' elapsed economic life and thus of the costs already recovered by the regulated SMP operator. This approach sends efficient market entry signals for build or buy decisions and avoids the risk of a cost over-recovery for reusable legacy civil infrastructure…".*

[200] Paragraph 36 states that "*The indexation method would be applied to calculate current costs for the RAB corresponding to the reusable legacy civil engineering assets*..."

[201] Paragraphs 135-138 of Eircom's Non-Confidential Response dated 18 November 2020.

[202] By applying a RPI (or CPI) to assets bought many years ago inflates/increases the asset value (given that the CPI has been positive over the long-term) compared to the price that Eircom paid for these assets at the time of purchase. Hence, Eircom would over recover its costs compared to what it initially paid for these assets. ComReg considers that for assets which are reused for NGA services it is important that prices encourage efficient reuse of those assets by all operators. Therefore, it would be inappropriate to set the price above efficient costs as it is preferable to "buy" access to these assets rather than "build". In addition, this approach ensures strict cost recovery, in that Eircom recoups the money that it invested in the asset plus a rate of return.

asset lifetime using an asset specific price index (as part of the tilted annuity formula) instead of the retail price index which should ensure that regulated prices follow the evolution of network asset prices.

5.251 Accordingly, ComReg is only carrying forward the RAB approach used in the 2016 Access Pricing Decision, subject to a number of refinements, based on a more informed measurement of the projected level of CEI investment by Eircom, as outlined in paragraph 312 of the 2020 CEI Pricing Consultation. ComReg continues to consider that the existing RAB approach for Reusable CEI Assets is a reasonable basis for valuing those reusable legacy ducts and poles for purposes of NGA deployment.

ComReg's final position

5.252 Having considered all of the Respondents' Submissions, ComReg remains of the view that Reusable CEI Assets shall be valued based on a RAB approach and set by reference to Eircom's HCAs and Non-reusable CEI Assets shall be valued on the basis of a RAB approach based on replacement costs for the reasons outlined above.

5.6.2 Asset lives for CEI assets

Position set out in the Consultation

5.253 In Section 5.7 of the 2020 CEI Pricing Consultation ComReg considered whether any changes should be made to the length of the regulatory asset lives associated with the CEI assets i.e., duct and poles. ComReg noted that it revised the asset life for poles and ducts in the 2009 Asset Lives Decision, such that the regulatory asset life for poles was amended from 15 years to 30 years to more closely align with the average economic life of poles and the asset life for ducts was changed from 20 years to 40 years to more closely align with the average economic life of ducts.

5.254 ComReg was of the preliminary view that the existing asset life of 30 years for poles and 40 years for ducts remained appropriate.

5.255 ComReg recognised that the asset life of 30 years for poles in the 2009 Asset Lives Decision was set at a time when Eircom's network was based entirely on copper, but that now in the case of a fibre access network the asset life for poles in the future could potentially be greater given that fibre cables tend to have lower weight and cross-sectional area when compared with copper cables. As a consequence, ComReg considered that this would reduce the load that the pole is expected to carry and could justify a longer asset life.

5.256 ComReg also noted that paragraph 41 of the 2013 EC Recommendation provides that:

"…*When setting the economic life time of the assets in a modelled FttC network*

NRAs should take into account the expected technological and network developments of the different network components".

5.257 ComReg also noted that it had reviewed Eircom's data on pole replacements over a number of recent years from its internal pole database, although it was acknowledged by Eircom that the data was not complete. Based on this data, ComReg had observed that the average age of a pole when it was replaced was slightly longer than 30 years. However, this could reflect the fact that to date the pole has mainly carried copper cables and hence it may be that on a forward-looking basis, as FTTH is rolled out, the updated data could effectively show an increase in the expected life of a pole as fibre cables tend to be smaller and lighter than copper cables.

5.258 Alternatively, ComReg also recognised that the reason for the average age of replacement of poles in excess of 30 years could be a consequence of Eircom 'sweating' assets and tolerating sub-standard poles in the network longer than would be deemed appropriate from an efficiency perspective. Consequently, ComReg considered that sufficient evidence did not exist at this time to warrant a change to the existing asset lives for either poles or ducts.

5.259 ComReg invited the views of respondents (in Question 6 of the 2020 CEI Pricing Consultation) on the proposal that the existing regulatory asset lives for Eircom's poles and ducts should be maintained at 30 years and 40 years respectively.

Respondents' views and ComReg's assessment

5.260 ComReg received a direct response to Question 6 of the 2020 CEI Pricing Consultation from four Respondents, namely Eircom, NBI, Siro and ALTO. BT[203], Vodafone[204] and Virgin Media[205] stated that they had no comments and Sky did not address the issues raised in Question 6 in its general response.

5.261 Eircom agreed with ComReg's proposal of maintaining the existing regulatory asset lives for Eircom's poles and ducts at 30 years and 40 years respectively.[206] NBI agreed with existing regulatory asset life for ducts at 40 years but suggested considering a longer asset life for poles of 40 years to align with the duct asset life.[207] Siro disagreed with ComReg and suggested that the asset life of a pole should be 40 years, and the asset life of ducts, 50 years.[208] ALTO suggested that ComReg

[203] Page 8 of BT's Non-Confidential Response dated 18 November 2020.
[204] Page 7 of Vodafone's Non-Confidential Response dated 18 November 2020.
[205] Page 3 of Virgin Media's Non-Confidential Response dated 18 November 2020.
[206] Paragraph 139 of Eircom's Non-Confidential Response dated 18 November 2020.
[207] Page 30 of NBI's Non-Confidential Response dated 18 November 2020.
[208] Page 4 of Siro's Non-Confidential Response dated 18 November 2020.

should either extend the asset life for poles beyond 30 years or alternatively make adjustments for Eircom's historical under-investment.[209]

Asset life for poles

5.262 NBI, Siro and ALTO suggested a longer asset life for poles, beyond 30 years.

5.263 NBI submitted that it understood that, in the past, Eircom's pole testing procedures included a practice that poles with an age greater than 40 years would be marked for replacement, regardless of condition but in recent years only those poles that require replacement are replaced and so age is no longer an automatic criterion for replacement.[210] In addition, NBI's advisors, Frontier Economics, suggested that the pole asset lifetime should be made consistent with the calculation of pole replacement costs (of 75 years)[211].

5.264 NBI also referred to a 45 year pole asset life used in the Irish electricity market and a 2016 report from Oregon State University (on behalf of the North American Wood Pole Council) on longer assumed lifetime for poles of over 40 years.[212] NBI concluded that these combined with Eircom's revised policy on pole replacement above, would suggest that the current 30 years lifetime for Eircom's poles is far too short.[213]

5.265 ComReg has considered the views provided by NBI (and Frontier Economics), Siro and ALTO.

5.266 First, ComReg notes that NBI and Frontier Economics have also argued, as noted at paragraphs 5.238 to 5.242 above, that there should be an impairment to the opening value of Eircom's CEI assets in the NBP IA based on the NPV of future cashflows expected from its legacy copper network, which would impact on Eircom's ability to recover its initial investment in CEI regardless of the asset life. NBI's point on an impairment review and separately its proposal to extend the asset lives for poles seem to be at odds with each other. The argument to impose an impairment is predicated on the cost recovery of the pole asset being entirely dependent on the economic life of the copper network that the pole was originally deployed to support, while the argument to extend the asset life of the pole to 40 years emphasises the physical life of the pole over the potential economic life of the access network.

5.267 Second, ComReg notes that paragraph 35 of the 2013 EC Recommendation states that "*NRAs should set the lifetime of the civil engineering assets at a duration corresponding to the expected period of time during which the asset is useful and to*

[209] Page 7 of ALTO's Non-Confidential Response dated 18 November 2020.
[210] Page 32 of NBI's Non-Confidential Response dated 18 November 2020.
[211] Page 23 of Frontier Economics Non-Confidential Report dated November 2020.
[212] https://woodpoles.org/portals/2/documents/TB_ServiceLife.pdf
[213] Pages 32-33 of NBI's Non-Confidential Response dated 18 November 2020.

the demand profile." (emphasis added) ComReg considers that the existing asset lives for poles of 30 years reflects their average economic useful lives, as determined in the 2009 Asset Lives Decision.

5.268 In the 2009 Asset Lives Decision ComReg assessed information from a number of sources including Eircom's fixed asset register, suppliers of telecoms assets, asset lives applied in other jurisdictions as well as the impact of climate conditions and how severe weather conditions can impact on how long assets last. ComReg recognised in that Decision that while Eircom's poles can have a lifespan in excess of 30 years with some even lasting up to 40 or 50 years, there may also be cases of poles lasting less than 30 years (e.g., in the case of storm damage). ComReg considered accordingly that 30 years strikes an appropriate balance for the asset lives of poles in Ireland.

5.269 Third, as recalled above, as part of the ANM modelling ComReg reviewed Eircom's data on pole replacements (although the data was incomplete) over a number of recent years and found that there was not sufficient evidence at this time to warrant a change to the existing asset lives for either poles or ducts.

5.270 Eircom agreed with ComReg that "…*there is insufficient evidence to justify amending the current asset lives for either poles or ducts*."[214] In addition, Eircom submitted that *"…it is too soon to understand whether the removal of copper cables from pole routes and from duct sections can be completed without a cost, or damage to the infrastructure, that would not be off-set by any increase in subsequent economic life."*[215]

5.271 Fourth, the fact that the regulated asset life of poles in the Irish electricity market has been set at 45 years does not necessarily imply that a similar asset life is appropriate for telecom poles in the NBP IA. Electricity distribution networks are unlikely to be subject to the same rate of technology change as telecoms, where it is possible that, in 30 years, advances in technologies such as mobile, satellite or FWA could reduce the telecom network's reliance on poles and ducts. There is even a possibility that electricity distribution networks can be adapted in the future to support telecoms, whereas the prospect of a telecoms network being used to distribute power is very remote. Consequently, even if the physical asset life of a telecom pole is similar to that of an electricity pole, their economic life could be very different.

5.272 As no convincing evidence was provided by any Respondents to the 2020 CEI Pricing Consultation to warrant a change to the existing asset life of poles, ComReg is of the view that the pole asset life should remain at 30 years in line with the 2009 Asset Lives Decision.

[214] Paragraph 140 of Eircom's Non-Confidential Response dated 18 November 2020.
[215] Paragraph 142 of Eircom's Non-Confidential Response dated 18 November 2020.

Asset life for duct

5.273 Siro was the only respondent to suggest an extended asset life for duct, from 40 years to 50 years, although NBI noted that duct asset life should be kept under review as part of the annual review and update to the DAM.

5.274 Similar to the position set out above at paragraph 5.267 on poles, ComReg is of the view that the existing asset lives for ducts of 40 years reflect their average economic useful lives, as determined in the 2009 Asset Lives Decision.

5.275 In the absence of any evidence at this time to warrant a change to the existing asset life of ducts, ComReg considers that the duct asset life of 40 years remains appropriate in line with the 2009 Asset Lives Decision.

Other issues

5.276 Eircom submitted that "…once NBI is the sole tenant for eir ducts and poles in the IA then asset lives for poles and ducts that are substantially in excess of the NBI contract term for use of that infrastructure represents a risk that eir must be allowed to pass to NBI."[216]

5.277 ComReg recognises that the contract term can have a bearing on the asset life. However, ComReg notes that most of the pole investment has either already taken place in the case of reusable poles, or is scheduled to take place in the early years of the NBP contract in the case of pole replacement. Consequently, Eircom's claim that the asset lives are substantially in excess of the NBI contract term is overstated, as retaining the 30 year asset life should result in most of the pole network being close to being fully depreciated particularly given the prospect that NBI's network may remain active beyond the 25 year contract period and given the possibility that these customers are likely to continue to require a broadband service beyond NBI's contract. It is also the case that the contract terms between Eircom and NBI will see most of the investment in duct remediation being charged upfront to NBI, which, when combined with the assumption in the DAM that the legacy duct infrastructure in the IA is already fully depreciated, will mean that NBI's MIP will bear all of the risk associated with duct investments in the NBP IA, to the extent that it will have to pay very little for ongoing duct access over the period of the contract.

ComReg's final position

5.278 Having considered the Respondents' Submissions ComReg remains of the view that the asset lives for poles and ducts should continue to be based on 30 years and 40 years, respectively, for the reasons set out above.

[216] Paragraph 144 of Eircom's Non-Confidential Response dated 18 November 2020.

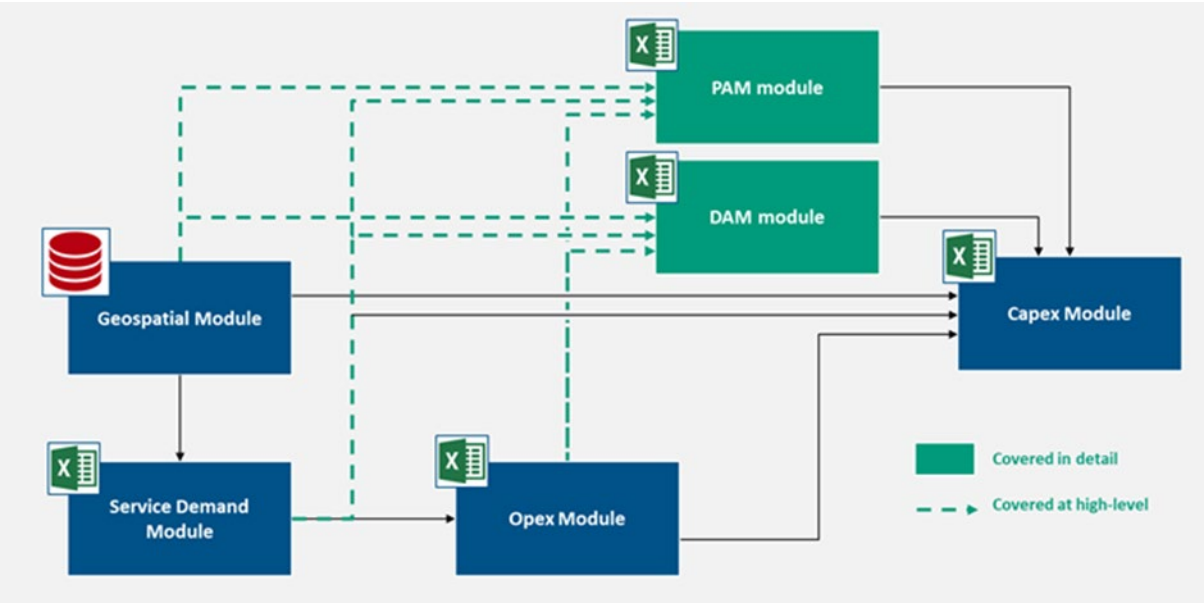
5.6.3 Determination of CEI unit costs

Position set out in the Consultation

5.279 Section 5.8 of the 2020 CEI Pricing Consultation set out ComReg's proposed cost modelling approach for calculating the level of costs associated with access to Eircom's CEI (duct and pole) services. ComReg noted that it had undertaken a review of the Revised CAM used in the 2016 Access Pricing Decision and two of the modules in the reviewed model were concerned with the costing of CEI Access, namely the PAM used to determine the pole access costs, and the DAM used to determine the duct access costs, over a 40 year model period.

5.280 The ANM is used to determine the costs of providing copper and fibre services across Eircom's fixed access network. The PAM and DAM are two of the six modules that make up the ANM. The other ANM modules include capital costs, operating costs, service demand and geospatial module. Figure 15 provides an overview of the structure of the various modules in the ANM, noting that the PAM and DAM are inputs to the Capex module (which outputs final prices for Eircom's fixed line access services set by this Decision).

Figure 15: Overview of structure of modules in ANM



Source: Cartesian Consultants

5.281 The PAM and the DAM model relevant pole and duct access costs from 2020 to 2060 in each of the three geographic footprints i.e., the Urban Commercial Area, the Rural Commercial Area and the NBP IA.

5.282 Access to the non-confidential version[217] of the PAM and the DAM, as well as the associated documentation, was provided to a number of interested parties who requested access during the consultation process.

5.283 The costs for poles access and duct access (including Sub-Duct Access) services in the PAM and DAM, respectively, continue to be calculated based on a combination of TD HCA, based on Eircom's HCAs for the costing of poles or ducts that can be reused for the provision of NGA and with a form of BU-LR(A)IC(+) for CEI that needs to be replaced for the purposes of providing NGA services.

5.284 While the cost modelling approach for the CEI access prices set in the 2016 Access Pricing Decision was constrained by the lack of information available at the time in relation to actual and planned NGA deployments in Ireland, much more extensive information on FTTH roll-out is now readily available to ComReg and this information has been used in the PAM and DAM.

5.285 In particular, the PAM and DAM include information gathered from Eircom including financial / costing information that is largely based on its financial year ending 30 June 2019. Separately, ComReg also obtained information from Eircom and NBI on their detailed rollout plans, as this is considered a key driver for future CEI investment by Eircom.

5.286 ComReg invited the views of respondents (in Question 8 of the 2020 CEI Pricing Consultation) on the proposed cost modelling approach as implemented in the draft versions at consultation of the PAM and DAM for calculating the per unit costs associated with pole and duct access (in particular Sub-Duct Access), having explained ComReg's approach to the following matters in particular:

(a) Approach to determining the RAB;

(b) Approach to determining the value of Reusable CEI Assets;

(c) Approach to determining the value of Non-reusable CEI Assets;

(d) Calculation of Pole and Duct replacement costs;

(e) Calculation of Capital annuities and depreciation method; and

(f) Calculation of Operating costs, Incremental costs and shared network costs.

5.287 When determining the appropriate RAB, ComReg modelled the level of capital costs associated with CEI to reflect a full FTTH rollout in each of the three geographic footprints and the capital required to maintain this network thereafter so that it is 'NGA-ready'. In addition, as a first step, ComReg calculated the current value

[217] The non-confidential versions of the PAM and DAM excludes information considered to be confidential by Eircom and NBI and assessed in line with ComReg's confidentiality guidelines in ComReg Document 05/24. Any confidential values in the PAM and Draft DAM have been randomised.

associated with Reusable CEI Assets with reference to the Eircom's HCAs (for the financial period ending in 30 June 2019) and, as a second step, the level of capital costs for each of the subsequent years based on replacing Non-reusable CEI Assets at current replacement costs to allow the continued provision of copper-based services and ultimately FTTH services.

5.288 For determining the valuation of Reusable Assets, ComReg followed a similar approach to that taken in the 2016 Access Pricing Decision whereby the valuation of Eircom's Reusable CEI Assets is based on Eircom's accounting NBV directly taken from its HCAs and projected the NBV forward by including an allowance for future investment in related network assets over the price control period. Furthermore, for the purposes of deriving charges for Generic Access to CEI, the valued Reusable CEI Assets are depreciated over the remaining lifetime of the asset by applying a tilted annuity formula which uses as a parameter the asset price index. However, a 0% price trend was assumed for the tilted annuity to reflect that costs underpinning these assets are likely to be stable, as a result of contractor rates (a significant element of costs) being set for more than one year. ComReg also used Eircom's fixed asset register ('**FAR**') for the financial period ending 30 June 2019 and implemented some adjustments to the NBVs of the FAR in order to determine the capital value of Reusable CEI Assets as follows:

(a) For poles, ComReg removed the material costs (non-labour costs) related to Eircom furniture to provide drops to its customers and other items, which provide no benefit to an access seeker.[218] ComReg also adjusted the external labour costs of pole replacement by removing the incremental labour associated with replacing poles with furniture and modelled these costs separately as an incremental service.

(b) For ducts, ComReg used the details of the capital expenditure of Eircom's 300k FTTH network programme in the Rural Commercial Area to estimate and remove the costs incurred by Eircom in self-providing unstructured duct[219] to resolve conflicts on its aerial cable network.[220] ComReg also estimated and removed the costs associated with street cabinet assets, which it considered not to be relevant to a wholesale duct access service. In the absence of a detailed disaggregation of the duct asset class, ComReg used a similar approach as the one used in the Revised CAM, by using the bottom-up cost valuation of the inventory[221] (derived from the geospatial module in the ANM) mapped to the duct asset class. From

[218] These costs are then included in the ANM Capex Module and recovered across all Eircom's other services.
[219] Unstructured duct refers to underground transitions within overhead routes, which are not generally engineered to the same standard as those ducts within underground distribution routes.
[220] The costs of unstructured duct are included in the ANM Capex Module and recovered across all Eircom's other services.
[221] Trenches, ducts, chambers, street cabinets, line terminations, etc.

this, ComReg then calculated the relative share of these non-relevant assets and applied this to the historic NBVs.

5.289 In order to attribute the capital costs from Eircom's FAR to the geographic footprints (of NBP IA, Rural Commercial Area and Urban Commercial Area) ComReg used Eircom's 300k FTTH network programme in the Rural Commercial Area, which it allocated in full to the Rural Commercial Area. For the remaining FAR capital costs (including historic capital costs recorded in the FAR), and in the absence of available information to allow a direct attribution to footprints, ComReg apportioned it to the three geographic footprints using the following assumptions:

(a) For poles, the allocated capital costs are based on the relative number of poles in each of the footprints, as provided by Eircom.

(b) For ducts, the capital costs are only allocated to the Commercial Areas, with the split to the Urban Commercial Area and the Rural Commercial Area based on the access trench lengths (derived from the geospatial module in the ANM), weighted by the average trench capital cost per meter in each of these footprints (reflecting relative differences in trench size and surface types)[222].

5.290 ComReg also considered that duct renewal is not typically a recurring activity. Further, ComReg assumed that there would have been very limited duct investment since 1990 in rural areas comprising the NBP IA as most rural access routes are overhead. Therefore, in the absence of any evidence to the contrary, ComReg made an assumption in the DAM that the residual NBV observed in the FAR is related to duct build or renewal in Commercial Areas (and not in the NBP IA).

5.291 For determining the valuation of Non-reusable Assets, ComReg assessed the replacement costs for ducts and poles separately. For poles, ComReg considered two types of pole replacement i.e., business as usual pole replacement and accelerated pole replacement (i.e., the difference between the business as usual and the rate of replacement during a FTTH rollout).

5.292 ComReg calculated the BAU pole replacement as follows:

(a) The average level of pole replacement in the combined Urban Commercial Area footprint and in the NBP IA areas (i.e., where FTTH networks have not yet been deployed), in the five years to June 2019 is based on the historic breakdown of the number of poles replaced and the pole population in each of the footprints, which was provided by Eircom;

(b) In all three geographic footprints, ComReg calibrated the planned pole test failure rate to a rate of 10% over a full testing cycle, on the basis that Eircom typically

[222] By surface type we mean carriageway, footway and verge. These are discussed further in Section 6, below.

operates on a 12-year testing cycle, allowing, in addition, for a proportion of pole replacement outside the planned testing cycle due to weather storms or other damages. ComReg noted that this resulted in an average rate of [✂ ✂]% poles being replaced every year (in all three footprints) consistent with the level of pole replacement observed in the combined Urban Commercial Area and NBP IA footprints (above). This level of BAU replacement represented circa [✂ ✂] poles being replaced nationally per year and a level of capital investment of circa €[✂ ✂]m per year (of which circa €[✂ ✂]m would relate to the NBP IA footprint).

5.293 The accelerated pole replacement was calculated as follows:

(a) The average level of pole replacement in the Rural Commercial Area footprint, i.e., where the rollout of FTTH was completed in 2019, is based on data provided by Eircom. Over the four years of this rollout (from 2016 – 2019), ComReg has calculated in the PAM that a total of [✂ ✂]% of poles in this footprint were replaced. This corresponds to circa [✂ ✂] poles being replaced in this period and a total capital investment of circa €[✂ ✂]m.

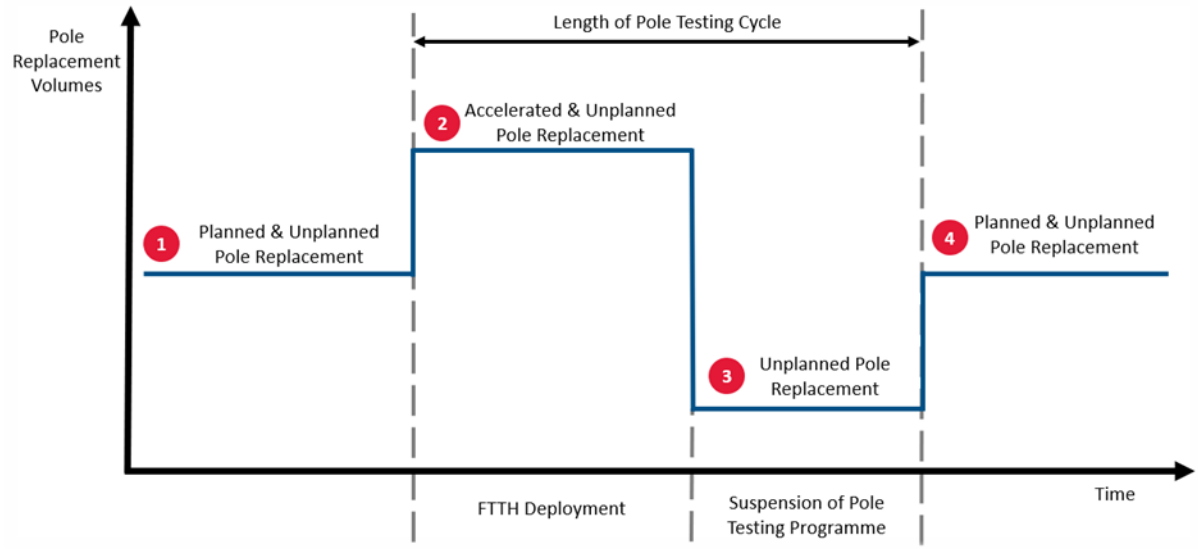
(b) In the NBP IA footprint, ComReg assumed a total level of pole replacement of 20% (over the entire seven-year period) similar to that observed in the Rural Commercial Area over the NBI rollout period. ComReg considered this a reasonable assumption, on the basis that the Rural Commercial Area (being equally made up of largely rural areas) would be expected to face a physical obsolescence of its pole network not too dissimilar to that of the NBP IA and on the basis of having a similar pole age profile resulting from pole testing being regularly performed.

(c) For the Urban Commercial Area footprint, ComReg assumed a level of pole replacement of circa 25% based on Eircom's information, over a five-year FTTH rollout period (2020-2024).

5.294 To estimate the level of pole replacement in each year of an FTTH rollout, ComReg used the pole base derived from the ANM geospatial module, based on the exchanges which in any given year become FTTH enabled, for each of the geographic footprints.

5.295 In advance of an FTTH rollout, all poles in the footprint are assumed to be tested. Hence, upon completion of an FTTH rollout and for the remaining duration of a pole testing cycle, ComReg assumed no further planned testing activity. ComReg nevertheless allowed for a residual level of unplanned pole replacement, based on information provided by Eircom, as a result of unexpected pole failure caused by weather storms or other damages. This approach is illustrated in Figure 16 below.

Figure 16: Forecast pole replacement volumes



Source: Cartesian Consultants

5.296 In calculating the capital costs of pole replacement, ComReg took account of the costs incurred by Eircom during its 300k FTTH Rural Network deployment as well as more recent cost information provided by Eircom. ComReg also noted in this context that sub-contractor labour is a significant cost component and ComReg used the most recent rates that Eircom agreed with the sub-contractors to inform the cost modelling exercise.

5.297 Further, in the absence of information from Eircom ComReg assumed a price trend of 0%, on the basis that sub-contractor rates, which are a significant cost component, are effectively fixed for a multi-year period corresponding to a FTTH rollout. In addition, ComReg considered that no further efficiency adjustment is required to the costs, as a more resilient CEI network resulting from the significant capital refresh and the transition to fibre will likely yield lower faults and lower preventive maintenance which will work to offset wage inflation.

5.298 The capital costs of pole replacement included the costs associated with the Asset Retirement Obligation (the '**ARO**'). The ARO applies to all the poles that Eircom has installed since 2004 and recognises the cost that Eircom must incur to ensure the appropriate disposal of those poles when they are eventually retired from the network. The cost modelling exercise recognised the fair value of the expected future cost of the ARO in the capital employed calculations.

5.299 For duct replacement costs, ComReg reviewed the costs incurred by Eircom as part of its 300k FTTH Rural Network deployment. As only a small share of the costs incurred in ducts is related to the deployment of new trench or new ducts, with the majority of the costs being incurred to clear blockages in existing ducts to allow sub-duct to be deployed, ComReg considered that calculating a BAU level of duct

replacement or renewal was not appropriate and so ComReg only calculated the duct replacement or renewal costs during a FTTH rollout programme in the DAM.

5.300 ComReg assumed that the driver for duct replacement or renewal is the length in kilometres of underground route being intervened in advance of deploying FTTH. ComReg reviewed the costs incurred by Eircom as part of its 300k FTTH Rural Network programme with a view to informing the level of network activity expected in a FTTH rollout. The costs incurred as part of Eircom's 300k FTTH network programme in the Rural Commercial Area were summarised into a number of duct activities including sub-duct installation (including duct blockage clearance), chamber remediation or rebuilding, footpath and carriageway reinstatement, new trench/duct and other remediation activities.

5.301 For both the Urban Commercial Area and NBP IA footprints, where FTTH is expected to be rolled out in future years, ComReg assumed that the entire underground route is provided with sub-duct,[223] on the basis that all premises in these two footprints should be served by FTTH using the existing Eircom duct network.

5.302 ComReg also estimated an average of two duct clearances per kilometre of underground route in all three footprints, based on an analysis of information provided by Eircom. Hence, the costs for duct access include the cost of clearing duct blockages.

5.303 For the remaining remediation activities (and which are noted at paragraph 5.300 above), ComReg calculated an average occurrence per metre over the rural commercial underground route length, based on the number of occurrences (of the remaining activities e.g., chamber rebuild) from the costs incurred under each of these activities and the associated sub-contractor unit rates.

5.304 In terms of determining the capital costs, ComReg took account of the costs incurred by Eircom during its 300k FTTH Rural Network deployment in the Rural Commercial Area as well as cost information provided by Eircom, in order to establish the capital costs associated with replacing or renewing a segment of underground duct route.

5.305 With the exception of sub-duct, ComReg retained the estimates of the costs of materials for each of the duct remediation activities (noted at paragraph 5.300 above) based on the Revised CAM, as Eircom did not provide any updated information in this regard. In addition, the capital costs in the DAM reflected Eircom's estimates of payments to local authorities or the National Road Authority relating to the presence (or disturbance) of Eircom's network on public spaces.

[223] The cost of sub-duct includes all of the costs associated with installing sub duct i.e., clearing duct blockages, the cost of rod, rope and test and process related costs.

5.306 For estimated contracted labour and assumed price trends for duct remediation, ComReg adopted the same approach as that used for pole replacement costs, as summarised above.

5.307 For determining capital annuities and depreciation methods the capital annuities were calculated in the following way:

(a) In the Urban Commercial Area and in the Rural Commercial Area footprints, the capital annuities for Reusable CEI Assets were modelled based on a straight-line depreciation method (from Eircom's HCAs) taking into account a return on capital based on the Eircom regulated WACC. The capital annuities for Non-reusable CEI Assets are based on a tilted annuity method, also applying the regulated WACC.

(b) In the NBP IA footprint, the capital annuities for Reusable CEI Assets were modelled based on a straight-line depreciation method (from Eircom's HCAs) while taking into account of a return on capital based on the Eircom regulated WACC. The capital annuities for Non-reusable CEI Assets are also based on a straight line depreciation method, also applying the regulated WACC.

5.308 On the operating costs associated with CEI, the operating cost information was taken from Eircom's HCAs based on an average of the two financial periods ending June 2018 and June 2019 as a typical year (as is done in Opex see paragraph 5.393).

5.309 For determining the direct operating costs of repair and preventative maintenance, ComReg used Eircom's HCAs (as mentioned in the preceding paragraph), and Eircom's activity-based cost model, to identify the relevant costs associated with these two cost categories. Eircom's HCAs only identify repair and preventive maintenance costs for the aerial or the underground network in its entirety, which mainly includes poles, ducts and the aerial and underground cable. ComReg made the following assumptions:

(a) For repair costs, a share of the total direct costs[224] derived from Eircom's HCAs (see paragraph 5.308) was attributed to the physical repair of poles and ducts, based on analysis of faults provided by Eircom from its fault handling system. Eircom noted that where a fault damages both cable and the underlying civils infrastructure, Eircom's fault handling system records the fault against cable. However, for poles, ComReg considered that where a customer's service is reported as being faulty (for instance as a result of a weather storm event), this is more often related to the aerial cable than to failure of the pole and only in limited situations (for example, where the straightening of the pole is sufficient to restore service) the associated cost is expensed. Similarly, for ducts ComReg would expect that only a limited number of faults should be expensed.

[224] The direct costs are the pay and non-pay costs of Eircom's service assurance field force.

(b) For preventive maintenance associated with poles, an estimate of [✂ [redacted] ✂]% of the total costs attributed to preventive maintenance of the aerial network in Eircom's HCAs (see paragraph 5.308), which relates mainly to the pole testing programme, was used. This is based on a breakdown of preventive maintenance by programme provided by Eircom. ComReg also considered an estimate for costs of tree trimming associated with poles (for example, to facilitate the replacement of a faulty pole). However, the tree trimming programme is primarily an aerial cable activity, so this estimate was set at [✂ [redacted] ✂]% of tree trimming programme, as provided by Eircom.

(c) For preventive maintenance associated with ducts, an estimate of [✂ [redacted] ✂]% [225] of the total costs attributed to preventive maintenance of the underground network in Eircom's HCAs, relating mainly to the retrieval of redundant copper cables to free up duct space, was used. This was based on a breakdown of preventive maintenance by programme provided by Eircom.

(d) For the attribution of operating costs to the three geographic footprints, ComReg assumed that these should be based on relative volumes by year. For poles, this is done based on the relative number of poles in each of footprint, while for ducts, trench lengths by footprint are used.

5.310 The common corporate costs, which typically include general IT system costs, office accommodation and transport management as well as corporate costs such as finance, legal, HR and senior management were extracted from Eircom's HCAs (see paragraph 5.308), and Eircom's activity-based cost model. ComReg proposed that these costs be calculated as a mark-up of 18.9% on the capital annuities. The percentage mark-up is calculated in the ANM by dividing the total common corporate costs by relevant ANM capex. ComReg proposed that these common corporate costs should only be recovered by Eircom through the services it provides in the Commercial Areas in line with the principle discussed earlier adopted in the 2018 Pricing Decision. Hence, this mark-up was calculated based on the ANM capex in Commercial Areas and consequently, it was only be applied on the capital annuities of poles and ducts in the Commercial Areas and not in the NBP IA

5.311 The common corporate costs, which typically include general IT system costs, office accommodation and transport management as well as corporate costs such as finance, legal, HR and senior management were extracted from Eircom's HCAs (see paragraph 5.308), and Eircom's activity-based cost model. ComReg proposed that these costs be calculated as a mark-up of 18.9% on the capital annuities. The percentage mark-up is calculated in the ANM by dividing the total common corporate costs by total ANM capex. ComReg proposed that these common corporate costs should only be recovered by Eircom through the services it provides in the

[225] Eircom noted that majority of costs recorded against underground preventive maintenance in recent years is related to retrieval of large redundant copper cables to free up duct space and additionally to recondition copper cabinets (e.g. repairing and resealing doors) but have not provided a breakdown of costs.

Commercial Areas in line with the principle discussed earlier adopted in the 2018 Pricing Decision. Hence, this mark-up was calculated based on the ANM capex in Commercial Areas and consequently, it was only be applied on the capital annuities of poles and ducts in the Commercial Areas and not in the NBP IA.

5.312 In terms of identifying the incremental costs in the NBP IA, the specific capital costs associated with making Eircom's CEI 'NGA ready' in advance of NBI's fibre rollout are recovered solely through NBI's MIP expected cost contribution. ComReg identified the additional capital cost i.e., subcontractor labour of pole replacement related to pole furniture (DP enclosures) as an incremental cost to the access seeker and those costs are not calculated as part of an annual charge for a pole. In the NBP IA, the following capital costs (annuities) associated with Eircom's CEI assets are considered as incremental costs:

(a) The capital costs relating to accelerated pole replacement during a FTTH rollout;

(b) The capital costs relating to the deployment of sub-duct[226], including to clear duct blockages as DFE[227] as well as remaining duct remediation during a FTTH rollout.

5.313 With regards to the Commercial Areas, all pole capital costs (annuities), i.e., both BAU and accelerated pole replacement, and all duct capital costs (annuities) during a FTTH rollout were modelled as shared network costs, to be recovered from all the CEI users. Based on the information to hand, ComReg did not identify any capital costs for poles that would be considered incremental to NBI's transit access in the Commercial Areas and that should be recovered in the annual pole access charge.

5.314 In the case of duct access, all duct capital costs that are incurred to make a duct network NGA ready were modelled as shared network costs, except for sub-duct which is modelled as an incremental cost to the access seeker. ComReg considered that it is uncertain whether Eircom may in all cases have sufficient capacity, so ComReg assumed that any Sub- Duct Access request would require a new sub-duct to be installed in all requests. Furthermore, even on the occasions that sufficient spare capacity exists to facilitate the duct access request on a specific route, its use by the access seeker necessarily limits the capacity available to other potential users of sub-duct on that route in the future, ComReg considered that it is appropriate to model the full cost of sub-duct as an incremental cost. This approach recognises in the Commercial Areas the opportunity cost to Eircom of its ducts being occupied and in the NBP IA that no other opportunity to fill the sub-duct may be presented to Eircom.

[226] This includes the costs of rod, rope & test of sub-duct.

[227] A significant part of the sub-contractor labour costs incurred with duct blockage clearances are charged as 'differences from estimate' ("**DFE**"), based on the actual volumes of duct blockages encountered when laying sub-duct. To allow for this, ComReg estimated in the 2020 CEI Pricing Consultation that an average of two duct blockages clearances per kilometre of underground route in all three footprints, based on information provided by Eircom.

5.315 ComReg categorised all operating costs (including the cost of duct and pole maintenance and common corporate costs) as a shared network cost and did not identify or explicitly model any incremental operating costs other than process costs and ongoing wholesale costs such as product management, billing or account management (described below).

5.316 In the context of NBI's MIP in the NBP IA and for NBI's transit access in the Commercial Areas, ComReg estimated possible incremental operating costs associated with ongoing wholesale costs such as product management, billing or account management. ComReg believed that these costs were likely to continue over the entire duration of the CEI access, and ought to be included as part of the recurring access prices. ComReg included an estimation of these costs in the PAM and DAM.[228]

Respondents' views and ComReg's response:

5.317 ComReg received a direct response to Question 8 of the 2020 CEI Pricing Consultation from four Respondents, namely Eircom, NBI, BT and ALTO. While Sky did not respond directly to Question 8, ComReg has considered Sky's general response in its assessment of responses to Question 8 below. Vodafone[229], Virgin Media[230] and Siro[231] stated that they had no comments on the proposed cost modelling approach for the PAM and DAM.

5.318 Eircom raised a number of issues with the cost modelling approach, including concerns about the information used for establishing the costs for duct investments[232], reuse and replacement assumptions for poles[233], the recovery of common corporate costs[234], service demand assumptions[235] and inconsistency between depreciation approaches for reusable and non-reusable CEI assets coupled with changes to the WACC rate[236]. NBI noted that the CEI charges derived from the CEI models were consistent with the approach set out in the 2020 CEI Pricing Consultation (and Cartesian's report) but it claimed that there were two potential errors in the models relating to the calculation of the NBV and depreciation.[237]

[228] These incremental operating costs are only relevant on a 'LRIC approach and would not be appropriate in the case of a 'LRAIC Plus' approach as those costs would already be included in the allocation of common corporate costs.
[229] Page 7 of Vodafone's Non-Confidential Response dated 18 November 2020.
[230] Page 4 of Virgin Media's Non-Confidential Response dated 18 November 2020.
[231] Page 5 of Siro's Non-Confidential Response dated 18 November 2020.
[232] Paragraphs 154-156 of Eircom's Non-Confidential Response dated 18 November 2020.
[233] Paragraphs 105-110 of Eircom's Non-Confidential Response dated 18 November 2020.
[234] Paragraph 164 of Eircom's Non-Confidential Response dated 18 November 2020.
[235] Paragraph 159-163 of Eircom's Non-Confidential Response dated 18 November 2020.
[236] Paragraphs 167-168 of Eircom's Non-Confidential Response dated 18 November 2020.
[237] Pages 38-39 of NBI's Non-Confidential Response dated 18 November 2020.

5.319 Sky[238], ALTO[239] and BT[240] reiterated their concerns about the treatment of common corporate costs and that the services sold in the Commercial Areas should not cross subsidise those services in the NBP IA. The modelling of common costs and the steps ComReg has taken to address stakeholder concerns regarding potential cross subsidisation between services sold in Commercial Areas and those sold in the NBP IA are discussed in paragraphs 5.493 to 5.501. Sky also raised other cost modelling issues including treatment of Eircom's historical underinvestment in CEI[241], the assumed incremental pole capital costs for NBI's transit services in the Commercial Areas[242] and the pole replacement assumption (of 25%) in the Commercial Areas[243]. These and other issues relating to the modelling of CEI costs are discussed in the following subsections

Model updates to reflect Eircom's IFN costing data

5.320 Eircom submitted that the financial information ComReg collected from it on underground investments required to deploy fibre optic cable into provincial and rural ducts is not a good indicator of the underground costs of deploying an urban FTTH network. Eircom noted that the only parts of the provincial and rural underground CEI upgraded for the rural FTTH deployment were those routes leading from the OLT site to the overhead ribbon routes. According to Eircom, these routes do not include underground infrastructure within housing developments, which will be typical of ducts that require remediation for the Urban FTTH deployment IFN being rolled out by Eircom, and so Eircom indicated that the DAM should be populated with the cost data from the IFN financial reports.[244]

5.321 Eircom also outlined a number of issues with ComReg's modelling assumptions regarding the urban duct deployments. Eircom claimed that the IFN urban FTTH deployment is based on an agreed price per home passed and not directly related to the most recent rate card for ducting or cabling activities, that the experience of Rural Commercial Area footprint remediation may not be relevant to Urban Commercial Area footprint and that sub-duct will only be deployed to the last fibre DP rather than all urban ducts being fitted with sub-duct.[245]

5.322 Further to Eircom's response, since the 2020 CEI Pricing Consultation ComReg requested the IFN data from Eircom for the purpose of assessing the relevant Urban Commercial Area footprint costs in the DAM. However, the IFN cost data provided by Eircom is not disaggregated to the level of detail that ComReg requires for the

[238] Raised throughout Sky's Non-Confidential Response dated 18 November 2020.
[239] Pages 7-8 of ALTO's Non-Confidential Response dated 18 November 2020.
[240] Page 9 of BT's Non-Confidential Response dated 18 November 2020.
[241] Paragraphs 80-83 of Sky's Non-Confidential Response dated 18 November 2020.
[242] Paragraphs 89-91 of Sky's Non-Confidential Response dated 18 November 2020.
[243] Paragraphs 92-94 of Sky's Non-Confidential Response dated 18 November 2020.
[244] Paragraphs 154-156 of Eircom's Non-Confidential Response dated 18 November 2020.
[245] Paragraph 176 of Eircom's Non-Confidential Response dated 18 November 2020.

CEI cost models. Eircom's IFN data reflects [✂ [redacted] ✂], but not disaggregated by the different CEI activities (e.g. pole replacement, chamber rebuild, sub-duct installation) which are used to derive the costs in the PAM and DAM. In addition, the IFN information from Eircom is based on a sample of just over [✂ [redacted] ✂]% of IFN reach planned for CEI.

5.323 For these reasons, ComReg considers that Eircom's IFN data does not provide sufficient disaggregated detail on the costs associated with the various duct activities (e.g., chamber rebuild, sub-duct installation) nor does it allow the costs which are incremental to Eircom's fibre or copper networks to be isolated and excluded from the overall cost of duct access. By contrast, ComReg considers that the duct costing information used in the DAM based on Eircom's 300k Rural FTTH network programme (paragraphs 5.299 to 5.306) and the most recent contractor rates disaggregated by the different CEI activities (paragraph 5.285), provides a more robust and appropriate basis for determining the estimated costs associated with duct costs the Urban Commercial Area footprint. ComReg's cost analysis in the DAM is based on a granular disaggregation of duct activities, which allows for identifying those activities which are relevant (or not) to a duct access service. In addition, the recently agreed contractor rate card, is broken down by each job type e.g., pole replacement, sub duct installation, etc. in the IFN (similar to the case in the Intervention Area), as opposed to a single (total) contractor rate provided as part of the IFN data which does not provide sufficient comfort that the relevant costs associated with providing a wholesale duct access service are included.

5.324 In the DAM, ComReg did reflect some of Eircom's IFN data. ComReg updated the costs associated with the sub-duct to reflect the mix of sub-ducts deployed by Eircom for its own consumption in the IFN and updated the per metre cost for sub-duct installation (including rod, rope and test) labour costs to exclude the estimated element of one duct blockage clearance. Accordingly, ComReg increased the number of 'differences from estimate' ('**DFE**') duct blockage clearances from two duct clearances per kilometre of underground route in the DAM to three duct clearances in the final DAM in all three footprints.

5.325 ComReg also updated the average material cost of the chambers, which are of a relatively smaller size than those observed in the review of Eircom's 300k FTTH Rural Network costs, based on the planned material costs to complete the CEI construction phase.

5.326 In addition, ComReg reflected Eircom's update on the timing of its IFN deployment in both the rollout assumptions in the DAM and in the PAM.

5.327 Regarding the PAM, Sky[246] and ALTO[247] both questioned the (high) level of pole replacement expected in the Urban Commercial Area at a rate of 25%.

5.328 Since the 2020 CEI Pricing Consultation ComReg has revised the pole replacement rate assumption for the Urban Commercial Area footprint to reflect Eircom's recent IFN data. The pole replacement rate assumption for the Urban Commercial Area footprint has been reduced from 25% to less than 20% [✂ [redacted] ✂]% over a five-year FTTH rollout period (2020-2024). This update ensures that the PAM reflects the most recent information from Eircom on what it expects to replace in terms of poles in the Urban Commercial Area footprint over the next 5 years.

5.329 In addition, and based on Eircom's IFN data, ComReg has updated the assumed number of poles that Eircom expects to replace in the Urban Commercial Area footprint, down from [✂ [redacted] ✂]. ComReg also updated the material costs for poles in the Urban Commercial Area footprint, having observed from the IFN data that poles in this area are on average lighter compared to those in Eircom's 300k Rural FTTH network.

Updates to the modelling of NGA-ready costs in the Urban Commercial footprint

5.330 The ANM as consulted in the 2020 ANM Consultation included a CEI cost 'uplift' in the Capex module[248] for the purpose of calculating the costs of FTTC VUA, LLU and SLU services. This cost uplift is to recognise that the CEI network in the Urban Commercial Area footprint is not 100% 'NGA-ready' until the IFN is completed and the phased nature of the Eircom's FTTH deployment means that the modelled costs in the Urban Commercial Area footprint are only reflective of a 100% 'NGA-ready' CEI network upon completion of the FTTH deployment in 2024. This approach has been maintained save that the uplift is now implemented in the PAM/DAM rather than the Capex module. The cost uplift in the PAM/DAM is applied between 2020 and 2023 so that the CEI network costs are always, and in any given year, reflective of a 100% 'NGA-ready' CEI network (i.e., irrespective of the phased Eircom FTTH deployment). As result, the costs of a full NGA-ready CEI network are calculated in the PAM/DAM modules and then feed into the Capex module.

5.331 Furthermore, ComReg also updated the calculation of the CEI uplift by calculating the volume of CEI (number of poles to be replaced and kilometres of ducts to be remediated) which are yet to be made 'NGA-ready' and by calculating the associated annualised Capex, based on replacement costs / current costs. Hence, the

[246] Paragraph 92 of Sky's Non-Confidential Response dated 18 November 2020.
[247] Page 6 of ALTO's Non-Confidential Response dated 18 November 2020.
[248] Paragraph 5.178 of the Consultation.

outstanding balance of CEI to be made 'NGA-ready' — and therefore the 'CEI uplift' — will be at its highest in 2020 and will reduce to zero by 2024.[249]

BAU investments and incremental investments in CEI

5.332 NBI submitted that where Eircom replaces a pole and the replacement cost includes labour and equipment to move existing copper cables to the new pole the costs of moving the copper assets are not relevant to NBI's use. NBI considered that the share of net replacement cost funded by it must always be capped at 100% of the investment required for a new pole that is capable of being used in the deployment of a fibre network. NBI submitted that where extra costs are incurred to maintain or improve copper-based services, it is only reasonable that ComReg should ensure full cost recovery either through the USO or by recovering those costs from copper based services nationally but it is not appropriate for NBI or its wholesale customers – and, ultimately, retail FTTH customers in the NBP IA – to pay for an improved copper network.[250]

5.333 NBI's advisors, Frontier Economics, made similar arguments to NBI, suggesting only those CEI costs incurred to serve NBI should be considered, excluding therefore the costs incurred to maintain Eircom's copper-based services. Frontier Economics submitted that ComReg does not appear to have followed this approach in estimating the incremental capital cost of Eircom's copper service, as it does not explicitly estimate the capex in the scenario where CEI in the NBP IA only needs to serve the NBI network. According to Frontier Economics, there may therefore be costs that are incremental to Eircom's copper network that remain in the estimated cost base.[251]

5.334 Sky, BT[252] and ALTO[253] considered that under-investment by Eircom in its CEI in the past should not be rewarded and that ComReg should carry out an assessment of this matter in line with the recommendation from Dot Econ. Sky commented on *"...the scale of over recovery of costs by Eircom in recent years, as clearly evidenced in its statutory and regulatory accounts..."* and in its view Eircom has been permitted to charge wholesale prices based on models that assumed its network was being adequately maintained but that in the case of the NBP IA, in particular, the level of on-going investment was not aligned with prices Eircom was charging for services in these footprints.[254]

[249] The same approach is applied by ComReg in the ANM Decision for the purpose of deriving the LLU and SLU inputs used in the NGA Cost Model to set FTTC VUA and FTTC Bitstream. ComReg considers that this ensures that operators looking to use Eircom's CEI network to compete in downstream markets consume an NGA-ready CEI network in conditions that are consistent.

[250] Pages 26-27 of NBI's Non-Confidential Response dated 18 November 2020.

[251] Pages 35-37 of Frontier Economics Non-Confidential Report dated November 2020.

[252] Page 8 of BT's Non-Confidential Response dated 18 November 2020.

[253] Pages 6-7 of ALTO's Non-Confidential Response dated 18 November 2020.

[254] Paragraphs 80-83 of Sky's Non-Confidential Response dated 18 November 2020.

5.335 In response, ComReg agrees that in general where investments can be objectively identified as being incremental to Eircom's copper network or NBI's fibre network then those costs should be allocated to the respective service being provided over that network. In the case of the NBP IA, specific capital costs associated with making Eircom's CEI 'NGA ready' in advance of NBI's fibre rollout are considered incremental costs associated with NBI's MIP.[255]

5.336 However, any unplanned pole replacements (e.g., storm events, accidental damage) that occur regardless of NBI's fibre rollout are included in the 'business as usual' (BAU) expenditure, as Eircom has an obligation to provide fit for purpose CEI access and therefore needs to maintain BAU levels of network investment. This means that the BAU replacement of poles by Eircom in advance of those poles being required for NBI's fibre network deployment cannot objectively be regarded as an incremental cost to the copper services. ComReg considers that such pole replacements should be considered as BAU investment costs which should be shared between Eircom and NBI's MIP, as both operators benefit from that investment.

5.337 ComReg recognises that the cost of replacing a pole is higher than the cost of installing a new pole as pole replacement involves cable management and the disposal of the existing pole. However, where these costs arise only because of NBI's access request, e.g., where Eircom would not have replaced the pole or rearranged cables in advance of fibre deployment, then ComReg considers that it is reasonable that NBI's MIP should contribute to the recovery of such costs. In addition, ComReg does not agree that the charge to NBI's MIP should be capped at 100% of the investment required for a new pole. NBI is benefitting from the fact that it is getting access to an existing pole network, where the average pole cost is less than the cost of installing a new pole. To facilitate access to this pole network Eircom will have to replace a proportion of the existing poles and re-arrange copper cables to accommodate NBI's fibre cable.

5.338 As for rewarding past under-investment by Eircom in CEI, as discussed in subsection 5.6.1, the Reusable CEI Assets (poles and ducts) are valued based on the NBV taken directly from Eircom's HCAs i.e., the values are based on the unadjusted historic costs and reflect past investment patterns and the level of depreciation incurred. This approach is the same as the approach adopted in the 2016 Access Pricing Decision.

5.339 This approach ensures that for Reusable CEI Assets Eircom will not be remunerated for capital expenditure that it did not incur or for CEI assets that have been fully depreciated. It therefore facilitates cost recovery for the Reusable Assets while allowing other operators to access this non-replicable infrastructure at an efficient price level.

[255] ComReg identified the additional capital cost i.e., subcontractor labour of pole replacement, related to pole furniture (DP enclosures) as an incremental cost to the relevant access seeker, and so it has been considered separately (in Section 8) outside of the ongoing pole access charge.

5.340 Notwithstanding the above, ComReg considers that where there is evidence of a catch-up level of investment so as to offset previous historic delays by Eircom in making such investment, this should be reflected in Eircom's RAB for the Reusable CEI Assets and hence in the CEI access prices, so that Eircom is remunerated for those costs. For poles, ComReg considers that while it is desirable that a refresh of Eircom's pole network is treated as an ongoing activity given Eircom's USO performance obligations and the general need to ensure the safe operation of its network, this does not mean that a constant level of pole investment will be observable at any point in time and instead the assessment should be on the basis of the pattern of investment over time. For ducts, the same considerations do not necessarily apply. Investment in the underground network tends to be more ad hoc and driven by the rollout of cable deployments, including extensions to new housing developments.

5.341 Taking into consideration the issues raised above ComReg has revised the BAU investment levels for poles.

5.342 In the 2020 CEI Pricing Consultation (and summarised at paragraph 5.292 above), ComReg estimated the level of BAU pole replacement in the PAM based on the average level of pole replacement experienced across the Urban Commercial Area and the NBP IA footprints in the five years to June 2019. Given that the level of pole replacement observed in these footprints is below the average BAU replacement set in the Revised CAM, which may have been caused by Eircom's operational focus being diverted to its 300k FTTH Rural Network, ComReg considers that the cumulative difference provides a notional delay in the level of BAU replacement from 2016 which should now be reflected as an increase in BAU pole replacement levels over the FTTH rollout period (2020-2024).

5.343 Hence, the updated BAU pole investment levels result in an average rate of [✂ ✂]% poles being replaced every year (in all three footprints)

5.344 The level of BAU replacement has been increased from circa [✂ ✂] poles being replaced nationally per year (at a capital investment of circa €[✂ ✂]m per year (of which circa €[✂ ✂]m would relate to the NBP IA footprint)) in the 2020 CEI Pricing Consultation to circa [✂ ✂] poles being replaced nationally at a capital investment value of circa €[✂ ✂]m.

5.345 This adjustment to the BAU pole investment levels means that the incremental cost to NBI's MIP of Eircom's accelerated pole replacement will be reduced.

5.346 Frontier Economics also submitted that ComReg may have overestimated the incremental duct related costs to NBI. According to Frontier Economics, there may be spare capacity in Eircom's sub-ducts in the NBP IA which could be made available to NBI, without the need for Eircom to incur additional capital costs in deploying new

sub-duct for NBI. Frontier Economics stated that " *…it would be* reasonable *to include some costs on these routes to reflect the opportunity cost of using the spare capacity. However, that opportunity cost is zero within the IA, given that absent the NBP tender there is no reasonable prospect of an alternative operator using that spare capacity to deploy a parallel network."*[256]

5.347 BT[257] and ALTO[258] considered that should Eircom cut back on maintenance of the network there is a risk that a severe weather event could give rise to a disproportionate number of poles requiring unplanned replacement. In ALTO's view Eircom should "*roll-up these types* costs *into its annual account to set the cost of duct and poles for future years*" and so ALTO considered that it should offer the same to other providers and roll the cost into the future rental pricing.

5.348 In response to BT and ALTO, ComReg would point out that the BAU investment levels for poles in the PAM, discussed at paragraph 5.343, includes a percentage of unplanned pole replacement [✂ [redacted] ✂]%. In addition, ComReg notes that Eircom has previously capitalised costs that it incurred when remediating damage to its overhead copper network caused by severe weather events in 2017.[259]

CEI depreciation and implementation of WACC change

5.349 Eircom stated that it is incorrect for ComReg to depreciate the remaining lifetime of Reusable assets using a straight line depreciation based on Eircom's HCAs and the Non-reusable assets using a tilted annuity and to update the price path annually including for revised WACCs. Eircom submitted that "*In changing the depreciation method (and more generally resetting the tilted annuity), ComReg does not allow for efficient cost recovery of eir's costs for the deployment of assets that occurred in the regulatory environment mandated by ComReg. In other words, that new pole investment between 2016 and the date of a new decision by ComReg, would recover costs based on a WACC of 8.18% and a tilted annuity for that recovery of investment costs. The dangers of resetting a tilt has been acknowledged by ComReg in previous decisions but is totally ignored in this Consultation*."[260] Eircom suggested that the models need to be updated with the WACC that was in place at the time Eircom replaced its CEI, as otherwise it is inconsistent with Regulation 13(2) of Access Regulations.[261]

[256] Page 37 of Frontier Economics Non-Confidential Report dated November 2020.
[257] Page 14 of BT's Non-Confidential Response dated 18 November 2020.
[258] Page 14 of ALTO's Non-Confidential Response dated 18 November 2020.
[259] https://www.eir.ie/opencms/export/sites/default/.content/pdf/regulatoryinformation/HCA_Accounts_2018.pdf, page 30.
[260] Paragraph 168 of Eircom's Non-Confidential Response dated 18 November 2020.
[261] Paragraph 127 of Eircom's Non-Confidential Response dated 18 November 2020.

5.350 ComReg recognises that one of ComReg's objectives is to ensure that Eircom can recover the cost of its efficient investments in CEI along with a reasonable rate of return. ComReg acknowledges that changing the depreciation method or updating the WACC on those assets where the capital cost recovery is tied to a tilted annuity depreciation method may lead to an inconsistent path of recovery (other things being equal), and recognises that, in principle, the approach taken to update the WACC in the 2020 CEI Pricing Consultation could lead to some under recovery of costs, particularly when there has been meaningful demand for the services. This is notably the case with the LLU/SLU inputs used in the NGA Cost Model to inform FTTC prices in the 2018 Pricing Decision. Therefore, ComReg has updated the Capex annuities from 2020 in both the PAM and DAM cost models, by re-setting the NBV on the basis of an amortisation of capital (depreciation) from 2014 to 2019 based on the previous regulated WACC of 8.18%.

5.351 However, the WACC reflects the returns investors expect rather than what compensates them for historical investment decisions. It is important that regulated returns reflect the risks that companies face in making investments and that the relevant WACC encourages future efficient investment in telecommunications infrastructure in Ireland. It is also important to note that ComReg does not have an obligation to ensure financeability. It is for Eircom to manage its risks, including the risks associated with expected rates of return evolving over time. It is precisely because Eircom's rate of return is uncertain (and because that uncertainty is systematic) that Eircom's regulated WACC is above the risk-free rate.

5.352 NBI identified two potential errors in the calculation of NBV and depreciation in the CEI charges.[262] In relation to the NBV in the PAM and DAM, NBI noted that Eircom's CEI Capex is assumed to be incurred at the start of the year and it suggested that this should be changed to reflect the Capex being incurred in middle of the year as in practice expenditure is usually made throughout the year.[263]

5.353 While ComReg does not in principle disagree with NBI's suggestion, ComReg considers that the assumption used in the PAM that the CEI Capex is incurred at the start of the year is also a reasonable modelling assumption which was used previously in the Revised CAM (used to set CEI access prices) and ComReg believes there is value in maintaining consistency of approach in this regard.

5.354 While NBI agreed with the historical depreciation approach for poles used to take account of the change in the pole asset life in 2009 (from 15 to 30 years), it claimed that approach had been implemented incorrectly in the PAM.[264]

[262] Page 38 of NBI's Non-Confidential Response dated 18 November 2020.
[263] Page 38 of NBI's Non-Confidential Response dated 18 November 2020.
[264] Page 40 of NBI's Non-Confidential Response dated 18 November 2020.

5.355 Taking into account NBI's point, ComReg reviewed the calculations in the PAM and has made corrections to the PAM and DAM to reflect the comment made by NBI, although the impact is small.

CEI reuse and replacement rates in the NBP IA

5.356 In the case of poles in the NBP IA, Eircom stated that a reuse assumption of around 85% was appropriate based on an expedited 7-year roll-out by NBI.[265]

5.357 However, ComReg is of the view that the 20% pole replacement assumption used in the PAM in the 2020 CEI Pricing Consultation is a reasonable basis for the expected pole replacement in the NBP IA given that is based on data provided by Eircom. Eircom has submitted granular CEI data to ComReg on the pole replacement rate for its 300k Rural FTTH Network, which, given that it has similar network characteristics to that of the NBP IA, is appropriate to use for setting the assumed pole replacement rate for the NBP IA.

5.358 Separately, Eircom submitted views on the existing 92% reuse assumption for poles set by ComReg in the 2016 Access Pricing Decision. Eircom claimed, on the basis of its experience in deploying its 300k FTTH Rural Network, that the 92% reuse assumption substantially under-estimate the rate at which poles are required to be replaced to allow safe deployment of extensive new fibre cable overhead ribbons. According to Eircom, [✂ [redacted] ✂]

5.359 ComReg does not believe Eircom's conclusions are correct. First, to clarify, the PAM does not apply the 92% reuse factor for poles used in the Revised CAM. As outlined in Section 5.8 of the 2020 CEI Pricing Consultation and as summarised above, ComReg used the information available from Eircom's 300k Rural FTTH Network to determine the assumed reuse and replacement rates for poles in the NBP IA. Second, it is not the case that the reuse factor of 92% for poles used in the Revised CAM substantially under-estimated the level required to make the pole network NGA-ready. In the 2016 Access Pricing Decision ComReg set Eircom's pole access prices based on: (1) an allowance for BAU pole investment of [✂ [redacted] ✂] poles each year; and (2) an additional 8% replacement of Eircom's current pole base [✂ [redacted] ✂] to allow for future investment requirements to facilitate the deployment of NGA technology. This means that since 2016, the pole access prices derived from the Revised CAM has allowed for a total pole replacement rate in 2020 that is well in of excess of 8% [✂ [redacted] ✂]. BRG also noted that no BAU Capex has been included for the NBP IA in the DAM despite the NBP IA accounting for 10.4% of the total access trench length. Further,

[265] Paragraphs 105-106 of Eircom's Non-Confidential Response dated 18 November 2020.

BRG stated that BAU Capex is the largest element of cost in the Commercial Areas, so its exclusion in the NBP IA will have a large impact on the price. BRG called on ComReg to investigate this further.[266]

5.360 BRG also noted that no BAU Capex has been included for the NBP IA in the DAM despite the NBP IA accounting for 10.4% of the total access trench length. Further, BRG stated that BAU Capex is the largest element of cost in the Commercial Areas, so its exclusion in the NBP IA will have a large impact on the price. BRG called on ComReg to investigate this further.[267]

5.361 In response to BRG's point, ComReg would point out that this assumption follows from the fact that there has been very limited investment in duct in the NBP IA in recent decades with the result that the legacy duct is expected to be fully depreciated, particularly given the fact that the asset life for duct was 20 years prior to 2009. Please see ComReg's views at paragraph 5.244.

Service demand assumptions

5.362 Eircom also commented on the Service Demand module, stating that the forecast take-up of FTTH services, the initial level of Eircom copper services, and the timing of any Eircom retirement of copper services are presented as hard coded inputs into the PAM and, as a result, it is not fit for purpose and does not meet the consultation requirements under Article 6 and 7 of the Framework Directive. [268]

5.363 Eircom also claimed that the PAM contains a "*fundamental modelling error*", which would arise from inconsistency in the treatment of NBI take-up and the timing of copper switch-off between the alternative options presented by ComReg. As a result, the trajectories of the 'per operator' and 'per customer' rates for annual pole rental in the NBP IA (Table 16, page 163 of the 2020 CEI Pricing Consultation) would be the outcome of two "*entirely different forecasts.*"[269]

5.364 In response, ComReg notes, first, that the Service Demand module has been fully consulted on. The 2020 CEI Pricing Consultation also clearly explained that that the PAM and DAM rely on outputs from the Service Demand module, Geospatial module and Opex module of the ANM which were the subject of separate consultation and that the Respondents' Submissions to the ANM's Consultation would be taken into account by ComReg before deciding on the appropriate approach to modelling service demand. Section 5.4 sets out in detail ComReg's consideration of Submissions received in respect of the Service Demand module, including Eircom's, and ComReg's conclusions.

[266] Paragraphs 145-146 of BRG's Non-Confidential Report dated 18 November 2020.
[267] Paragraphs 145-146 of BRG's Non-Confidential Report dated 18 November 2020.
[268] Paragraphs 159-160 of Eircom's Non-Confidential Response dated 18 November 2020.
[269] Paragraph 161 of Eircom's Non-Confidential Response dated 18 November 2020.

5.365 Second, ComReg is unclear what Eircom means when it states that ComReg presented prices that are based on "*entirely different forecasts*". For the avoidance of doubt, there is only one forecast of NBI's fibre rollout (based on NBI's submitted plan) and only one forecast with respect to Eircom's assumed copper switch-off (based on the assumption stated in the ANM). The NBI rollout determines the volume of CEI which will be consumed by NBI's MIP each year while the timing of the copper switch-off determines whether CEI is used solely by NBI or shared between NBI and Eircom. Hence, the relative mix of single use CEI and shared use CEI is independent of the chosen cost sharing approach (for shared CEI).

5.366 ComReg also notes that Eircom commented that the assumed migration of copper to fibre in the NBP IA would "*not happen as forecast*".[270] However, this assessment appears to be based on a misinterpretation of the active volume information in the PAM and DAM[271] which is calculated based on the subset of exchanges, where both Eircom and NBI are present (and where CEI is shared) and not based on the total across all exchanges.

Other issues

5.367 Sky claimed that ComReg's position at paragraph 261 of the 2020 CEI Pricing Consultation that it "…*has not identified any capital costs for poles that* would *be considered incremental to NBI's transit in the Commercial Areas*" is completely at odds with evidence given by Eircom at a Joint Oireachtas Committee meeting.[272] According to Sky, Eircom explained that it had designed its 300k FTTH Rural Network with extra fibres and more expensive connection points that could be used to extend the footprint into the NBP IA. Sky considered that the "extra fibres" and/or "more expensive connection points" in order to facilitate NBI should rightly be passed onto NBI and not on other operators, with a corresponding and demonstrable reduction in the proposed regulated charges outlined in any final decision. [273]

5.368 However, ComReg notes that there is no allowance for fibre costs, connection points (splitters) or other cable related costs in the PAM and DAM, as these are not relevant to determining the CEI access costs. CEI access arises when NBI's MIP makes use of Eircom's CEI to deploy its fibre cables, whereas the additional capacity identified by Eircom relates to capacity on Eircom's Rural 300k FTTH Network. Therefore, CEI access services are modelled only to recover the costs associated with civil engineering assets, such as poles, trench/ducts, chambers or sub-ducts (including the remediation or renewal of these assets for the purpose of allowing NGA networks to be deployed) and again, there is no allowance for fibre costs or connection points.

[270] Paragraph 163 of Eircom's Non-Confidential Response dated 18 November 2020.
[271] This data is included in the "Input_Service_Demand" sheet of the PAM and DAM, labelled as "NBI Share of NBI/Eircom volumes".
[272] Made by CEO Carolan Lennon at the Joint Oireachtas Committee meeting on 25 June 2019.
[273] Paragraphs 89-91 of Sky's Non-Confidential Response dated 18 November 2020.

ComReg's final position

5.369 Having considered the Respondents' Submissions, ComReg, with the assistance of Cartesian Consultants, has updated certain parameters and information in the PAM and DAM to reflect a number of the issues raised by Respondents and also to reflect some further updates made by ComReg since the 2020 CEI Pricing Consultation as summarised below:

(a) Updates to reflect Eircom's IFN data (paragraphs 5.324 to 5.329);

(b) Changes to the CEI cost 'uplift', which ensures CEI costs reflect an 'NGA ready' network (paragraph 5.330);

(c) A change to the cost sharing approach for the BAU catch-up investment levels (paragraphs 5.342 to 5.345);

5.370 Other changes include resetting NBV and WACC rates for historic investments (paragraph 5.349) and correcting for implementation approach for historic depreciation for poles (paragraph 5.354).The changes made to the PAM and DAM modules as presented above[274] feed through into the ANM Capex module, and hence to the final charges set out in Section 7.

5.7 Opex module

5.7.1 Design of the Opex module

5.371 The purpose of the Opex module is to determine the operating costs that should apply in the ANM for both the TD and BU approaches. The outputs of the Opex module are inputted to the Capex module and combined with the annualised capital costs to derive the costs of services.

5.372 Under the TD approach the costs are those of an efficient operator operating Eircom's legacy network while in the BU approach, costs are based on the reduced number of maintenance staff required for the operation of a recently deployed network. In terms of efficiency adjustments, ComReg took the preliminary view that Eircom's TD costs, as recorded in the two most recent HCAs, were representative of an efficient operator, given the series of cost reduction programmes undertaken by Eircom since 2013. However, the ANM still includes significant efficiency adjustments when modelling BU costs in recognition of the fact that the costs of operating a recently deployed copper access network will be lower than the costs incurred in operating Eircom's legacy copper access network.

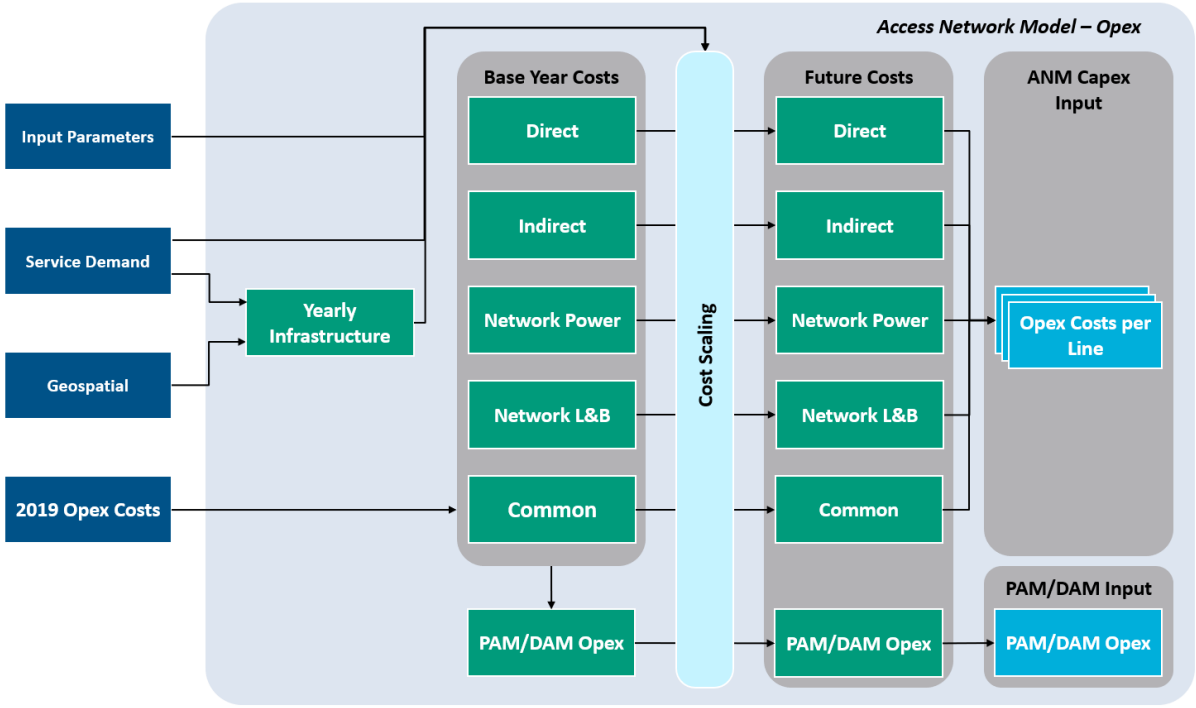
5.373 Most of the costs that are analysed in the Opex module are comprised of operational expenditures, which can be further broken down between pay and non-pay.

[274] Further information on the calculation of the PAM/DAM inputs into the Capex module is contained Section 8 of the Specification Document.

However, some non-network capital costs are also included (mainly depreciation and the Net Book Value ('**NBV**') associated with IT, accommodation and transport assets – e.g. motor vehicles) as well as elements of working capital such as debtors, creditors, stock, etc.

5.374 Figure 17 below provides a high-level overview of the Opex module.

Figure 17 High level Opex module overview



Source: Cartesian

5.375 In the Consultation, ComReg was of the preliminary view that the Opex module as designed was appropriate to determine the operating costs inputs into the Capex, PAM and DAM modules on the basis that:

(a) The TD approach adopted in the Opex module appropriately modelled the costs that an efficient operator would incur operating Eircom's legacy network; and

(b) The approach taken to recalibrate these costs in the BU approach ensured that the costs modelled were the costs that an efficient operator would incur operating a recently deployed network.

5.376 The following key aspects of the Opex module's approach to costs including in terms of data source, categories of operating costs and their allocation were highlighted in the Consultation:

Source of data for the Opex module

5.377 In the Consultation ComReg explained that Eircom's Additional Financial Information ('**AFI**'), is the source of the data contained in the Opex module. Each year, Eircom provides ComReg with a series of AFIs that are extracted from the cost accounting model that underpins the published HCAs. The AFI also captures whether the costs are considered as 'Opex', 'depreciation', or Mean Capital Employed ('**MCE**') – the green columns in Figure 18 below. The base year operating costs were derived from an analysis of the AFI cost data provided by Eircom as part of the annual regulatory accounting process in respect of the two most recent sets of Eircom's HCAs for the financial years ending June 2018 and June 2019, with further information provided in response to a data request under Section 13D(1) of the Act.

5.378 Eircom's cost accounting model uses an activity-based costing methodology, which consists of two steps:

(a) Allocation of operating costs to defined activity-based costing activities; and

(b) Mapping activity-based costing activities to network elements, market groups[275], and markets.

5.379 Cost activities that are relevant to the ANM include network related activities such as repair and maintenance ('**R&M**'), installation and provisioning ('**I&P**'), Network Management (which includes logistics, and network planning and support), as well as central activities such as shared services (i.e., human resources, general IT, finance/strategy, legal, regulatory, CEO, and other corporate). To facilitate modelling in the ANM these are aggregated into four high level cost categories – direct, indirect, network and common, as shown in Figure 18 below.

[275] Eircom's "Primary Accounting Document" outlines in detail Eircom's grouping into "market groups". Briefly one of these two groups is the "wholesale access market group" which comprises wholesale broadband access; wholesale leased lines, wholesale fixed narrowband and unbundled access. See https://www.eir.ie/.content/pdf/regulatoryinformation/primary_accounting_document_2020.pdf

Figure 18 Operating costs categorisation

		Opex			Depreciation			MCE		
Cost Category		Copper	Fibre	Provisioning	Copper	Fibre	Provisioning	Copper	Fibre	Provisioning
Direct	I&P									
	R&M – Line Sensitive									
	R&M – MDF									
	R&M – Pole Testing									
	R&M - Tree Trimming									
	R&M – Preventative Underground									
Indirect	Network Management									
	IT									
Network	Network Power									
	Network Land & Buildings									
Common	Network Rates									
	IT									
	Accommodation									
	Transport									
	PersAdmin									
	Other									

Source: Cartesian

5.380 ComReg noted in the Consultation that the most material direct cost relates to R&M – Line Sensitive, and ComReg estimated the TD copper related R&M – Line Sensitive costs for the base year to be in the region of €30m. However, this TD figure was reduced significantly (by circa 40%) when Direct R&M - Line Sensitive costs were rescaled for the BU scenario as described in paragraphs 5.395 to 5.396. The total costs in the other Direct R&M copper categories were less than €5m. Network management, at the time of the Consultation, was the most significant indirect cost at over €30m (including depreciation and cost of capital at 5.61%). The total common costs (including depreciation and cost of capital at 5.61%) in the TD scenario were between €35m and €40m, of which Network Rates was the most significant component (circa €10m).

5.381 For those cost types that are of a "direct" nature, such as repair and maintenance costs, Eircom has a recording system that attributes pay and other costs, such as stores (e.g. tools, protective clothing, uncapitalised equipment, etc.), to a range of sub-accounts known as "Appropriation Codes". These appropriation codes describe the type of equipment being maintained, installed or more generally supported, in further detail. It is therefore possible, for example, to identify separately the direct pay and other costs incurred in the maintenance of copper access lines.

5.382 The fact that a direct association can be established between a cost activity and a cost-driver such as copper access lines, also means that the amount of direct costs can be modelled to vary in response to any changes in the associated cost-driver over time. Consequently, direct costs in a future year can be forecast to scale relative to the 2019 base year costs in proportion to the ratio between the expected volume for that year and the 2019 base year volume.[276] This time-dependent scaling enabled

[276] Other factors such as inflation and increased efficiency can also impact the level of scaling between years and these are considered separately.

the modelling to incorporate the implications of the FTTH rollout and subsequent copper switch-off into the forecast of future costs, as the migration of demand from copper to fibre services will result in a reduction in the direct costs of copper access lines and an increase in the direct costs of fibre access lines. Direct costs also tend to be 100% variable in response to changes in the associated cost driver.

5.383 Cost types that are of an "indirect" nature are associated with activities that support the direct activities and include functions such as procurement, transport and network support, as well as some IT related activities such as fault management systems, and personal IT devices (e.g. for staff in the field responding to faults, etc.). Therefore, there is an indirect relationship between these costs and the cost-drivers in the ANM. For example for active copper lines, the amount of an indirect cost associated with these lines can vary in response to the changes in the direct costs, which, in turn, can vary in response to changes in the cost-driver, albeit some of the indirect costs can also be fixed in nature, e.g. the network management system might be a fixed cost but the personal devices that interface with it will vary in proportion to the number of users.

5.384 The "network" cost category includes network land and buildings and network power. These costs would be associated with the exchange buildings and active equipment and are therefore assumed to vary with the number of exchanges. The Opex module in the ANM only considers the share of network accommodation costs that are associated with access cables, which ComReg estimates to be in the region of €3M (operating expenditure and depreciation) across all exchanges.

5.385 The "common" cost category, as noted in the Consultation, comprises costs that would not be expected to change materially in response to changes in the level of work undertaken. A proportion of common costs can vary in response to changes in direct costs, but a greater proportion of the costs will be fixed than is the case of either the direct or the indirect cost categories. Examples of such costs include the network rates that Eircom, as a network operator, must pay on an annual basis to local authorities, as well as the costs of central and shared services activities, such as human resources, finance & strategy, business management, corporate insurance, legal fees, etc.

5.386 In addition to providing detailed information on Eircom's costs at an activity level, the AFI's also contain information on which Network Elements ('**NE**') those activities are allocated to in the HCAs. An NE is a unit of network plant or activity which can be attributed to end services based on a common cost driver. Eircom's Primary Accounting Document, published along with Eircom's HCAs, describes NEs as representing "*the most significant destination for network related costs in the cost*

allocation process before their final attribution to services based on usage factors or defined allocation bases".[277]

5.387 The HCAs also contain the "Network Cost Market Summary Wholesale Markets",[278] which shows the costs of various NEs and the wholesale markets to which they are allocated. The NEs that are most relevant to the services being costed in the ANM are the Copper Access Network, Fibre/High Speed Access Network, Provisioning Wholesale Network and Repair Wholesale Network.

5.388 The "Direct", "Indirect", "Network", and "Common" activities that are allocated to the "Network Elements", and the different levels of efficiency applied in the TD and BU approaches, and adjustments made for the BU approach were further described in the Consultation as follows.

Direct cost activities

5.389 Repair and maintenance ('**R&M**') costs represent the most significant 'Direct' element of the operating costs modelled in the Opex module. Most R&M costs relate to fault repair in the access network with the result that one of the key factors that influences the level of access network operating costs is the number and frequency of line faults that arise on the network. This can be measured by the line fault index ('**LFI**'). The LFI is influenced by the condition of the network assets, with the LFI being more sensitive to the condition of the cable network than to the condition of poles and ducts.

5.390 Most of the faults recorded on Eircom's access network are cable related and older cables are more prone to faults than newer cables. Consequently, replacing a percentage of existing cables with new cables has a much more significant impact on the level of R&M costs than would arise due to the replacement of an equivalent percentage of poles and ducts. The BU approach assumes that all cables have been recently deployed and, as a result, is assumed to have a significantly lower LFI than is evident with Eircom's legacy copper network in the TD approach, which is comprised of older cables in place for many years and is heavily depreciated.[279] ComReg also expects that fibre cables will have a lower fault incidence than copper cables, as fibre cables are more resilient to damage from lightening and water. A lower LFI for FTTH has therefore been assumed in the model.

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[277] See: https://www.eir.ie/opencms/export/sites/default/.content/pdf/regulatoryinformation/pad_fy_1819.pdf, page 11.

[278] See: https://www.eir.ie/opencms/export/sites/default/.content/pdf/regulatoryinformation/hca_fy_1819.pdf pages 18 & 19.

[279] The ratio of Gross Book Value to Net Book Value can provide an indication of the average age of assets. For Eircom's copper cable network this ratio is [✂ ✂]%, which suggests that the majority of copper cable costs have already been recovered.

5.391 To derive the operating costs that should inform the cost analysis in the ANM, ComReg, with its advisors Cartesian, analysed the R&M costs from the 2018 and 2019 AFIs from Eircom's HCAs to determine the proportion of these costs that should inform the line sensitive element of R&M costs in the base case TD approach. A scaling adjustment is applied to the base case TD approach for the line sensitive costs so as to derive the lower level of R&M costs that are consistent with the lower LFI that pertains in the BU approach.

5.392 The level of efficient repair and maintenance costs modelled in the BU approach was informed by the level of repair and maintenance costs modelled in the BU approach in the Revised CAM, which was derived as follows:

(a) Determining a reasonable LFI representative of a new efficient network;

(b) Determining a reasonable number of direct front-line staff required to maintain a network with this level of LFI;

(c) Estimating the pay costs consistent with the efficient number of front-line staff (as per point b) and then adjusting the existing R&M costs to align with this estimate; and

(d) Determining a reasonable level of actual indirect and common costs consistent with the BU approach.

5.393 The AFI information on R&M available to ComReg shows that there can be significant variances in the level of R&M costs incurred from year to year. The most significant factor that causes this variance is the level of storm activity. For example, the financial year ending June 2019 recorded no storm costs of consequence whereas the previous financial year had significant storm costs. Consequently, ComReg and its advisors used an average of these two financial years to determine the level of R&M copper costs that should inform the operating costs for the 'typical' year that is modelled in the ANM.

5.394 In terms of the level of efficiency that is relevant to the fault repair activities for the legacy network that is modelled in the TD approach, ComReg noted in the Consultation, that since the Revised CAM was finalised, Eircom has agreed specific fault repair Service Level Agreements ('**SLAs**') with penalties for failure to achieve those targets. To facilitate compliance with these more challenging SLA targets Eircom has restructured service assurance teams to support faster response/restoration times and invested in preventative maintenance programmes to replace sub-standard copper cables, which reduce the overall LFI of the network.

5.395 The Consultation also noted that Eircom has undertaken several cost reduction programmes in recent years and, although most of these were targeted at areas other than the service assurance teams in the access network, ComReg was of the preliminary view that the access network R&M costs in the most recent HCAs are

very close to a reasonable measure of efficiency, given the age and condition of the access network assets. Consequently, ComReg in the Consultation, implemented no further efficiency adjustments to the R&M cost in the TD approach, as the costs extracted from Eircom's HCAs were considered representative of an efficient operator operating Eircom's legacy network.

5.396 However, ComReg was of the view in the Consultation that the level of R&M costs in the BU approach will still be significantly lower than the TD R&M costs given the lower LFI, consistent with the recently deployed cable network modelled under that approach[280]. The conclusion that a recently deployed network would require less maintenance that Eircom's legacy copper network is reflected in the fact that, the level of reactive R&M costs in the Opex module of the ANM is over 40% lower under the BU approach than in the TD approach.

5.397 R&M costs relating to fault repair are modelled as a cost per active line using the active line count and costs estimated in the base year (2019) and the ANM also assumes a lower R&M cost per active fibre line than for active copper line. This allows future costs to scale in line with forecast volumes of both copper-based and fibre-based services as any decrease in active copper lines in future year will result in a lower overall copper related R&M costs while an increase in the FTTH active lines will lead to an increase in fibre related R&M costs.

5.398 In addition to the reactive R&M costs, the Opex module also models R&M costs relating to preventative maintenance programmes including pole testing and tree trimming programmes. When poles are surveyed and tested in advance of a programme such as the FTTH deployment undertaken by Eircom in rural areas, the associated costs tend to be capitalised. However, there are some pole testing costs that are associated with cyclical pole testing programmes that are not capitalised and these costs are included in the Opex module. As these costs are directly attributable to poles, all pole testing costs are incorporated into the PAM module instead of being apportioned to other assets through the Opex module.

5.399 Direct R&M costs also include costs associated with tree trimming. Operators often undertake tree trimming when deploying aerial cables or poles, but tree trimming can also be undertaken to prevent damage to existing cables and poles. The ANM can allocate a certain proportion of these costs to the PAM on the basis that they are considered to be pole related. However, tree trimming costs incurred when deploying new infrastructure tends to be capitalised, and in the Consultation ComReg estimated the average tree trimming costs recorded as operational spend in the last two financial years to be less than €0.5m. In the absence of better information, the allocation of these costs to the PAM was set to 5%, so most of these costs were

[280]The fact that Eircom recognised the need to replace older cables in recent preventative maintenance programmes in order to comply with stricter SLAs, substantiates the case that newer cables have lower LFIs and require less maintenance

treated as “cable-related” and, therefore, recovered as a cable related cost to be recovered across active line numbers.

5.400 The R&M Main Distribution Frame (‘**MDF**’) costs comprise a preventative maintenance activity that relates to the pressurisation of underground E-Side cables. Pressurisation systems are located beside the MDF in local exchanges and pump air into the E-side copper cables, which can limit potential damage by water ingress and give advance warning of damage to those cables. In the Consultation, the associated annual costs were estimated to be €2.5m and were treated as an MDF related cost, which means that the future costs can vary with the number of MDFs (e.g., costs will decrease if copper switch-off occurs in an exchange footprint) rather than the number of active copper lines.

5.401 Other costs included in the Direct costs category relate to the Installation and Provisioning (‘**I&P**’) activity, which is related to new connections. Eircom has adopted a policy of capitalising the I&P costs associated with NGA broadband connections (e.g., FTTC and FTTH) but still treats the I&P costs for standalone PSTN-WLR services as an operational cost. ComReg understands that Eircom outsources most I&P work to contractors, which means that the average cost per connection will reflect the agreed contractor rates. Therefore, forecast connection volumes can act as a cost-driver to forecast future I&P costs in the operating cost module by applying the average cost of a connection to the forecast connections volume. Consequently, as the number of copper connections decline in future years the associated copper connection costs will also be scaled down compared with the 2019 base year.

5.402 Similarly, the cost drivers identified for each operational cost category in the Consultation were also scaled, where relevant, based on the ratio between the expected volume for each year and the 2019 volume (e.g., for connections, copper lines, etc.). This time dependent scaling will be impacted by the FTTH rollout and copper switch-off, as the level of operational costs for copper and fibre will change as the mix and volume of copper and fibre based lines varies each year.

Indirect cost activities

5.403 Indirect cost activities, as noted in the Consultation, include the costs associated with activities and processes that support direct activities. For modelling purposes these were further categorised as network management and IT related. Network management includes activities such as the supervision of direct front-line staff, work planning, transport (e.g., vans) and procurement, while IT includes the costs of various support systems including provisioning, fault handling, geo-mapping and work management systems. Indirect Opex costs were then applied as a mark-up to direct operational costs, to recognise the fact that indirect costs are incurred in supporting direct operational activities. The various direct, indirect and network costs allocations were then combined into a ‘non-common cost per line’ for each of the

copper and FTTC services and for the FTTC links for all relevant exchange-footprints for the modelled year.

5.404 These indirect costs were modelled to vary depending on the corresponding increases or decreases in direct tasks – e.g., supervision will increase to some degree if direct R&M is increasing. However, a percentage of both Network management (30%) and IT (60%) indirect costs were assumed to be fixed, with the remaining costs varying in line with changes to direct costs.

Network costs

5.405 Network costs, as noted in the Consultation, comprise network related costs such as Network Power and Network Land and Buildings. Most network buildings are owned by Eircom, so rent is not a significant factor, but the depreciation and MCE of network buildings is included in the Opex module. Security, cleaning and insurance costs are also included. However, the allocation of network building costs to the network elements modelled in the ANM is relatively small as the occupancy of exchanges is dominated by transmission, switching and data equipment that are not modelled in the ANM. Likewise, only a relatively small element of Network Power costs were modelled directly in the ANM as the power consumption is limited to the access cable related equipment such as cable pressurisation systems and line testing equipment. These costs are attributed across the 1,148 exchanges in the ANM based on active lines.

Common cost activities

5.406 As noted in the Consultation, common corporate costs are modelled in the Opex module under the following categories: Network Rates, IT, Accommodation, Transport, Personnel Administration and Other. The level of common corporate costs in the base year TD approach is determined with reference to the costs in the 2017/18 and 2018/19 sets of Eircom accounts, with only the share of common corporate costs attributed to Network Elements that support fibre and copper access services considered for inclusion in the Opex module.

5.407 Some common corporate costs, as outlined below, were assumed to vary due to changes in the level of direct costs incurred in the two approaches, e.g., the reduction in the common corporate costs modelled in the BU approach is informed by the changes in the level of direct costs between the BU approach in the modelled year and the base year TD approach.

5.408 ComReg explained in the Consultation that all of these cost categories were modelled as a common corporate cost between fibre and copper services and recovered on a per-service basis, i.e., the same level of common cost was recoverable by the service regardless of whether the service used a fibre or copper transmission medium and, in the case of copper-based services, the same level of

common cost was proposed to be recovered regardless of whether it uses an LLU or SLU cost input. Doing so reflected the approach adopted in the 2018 Pricing Decision and has the benefit of allowing for greater stability of prices in the medium term while minimising the risk of stranded costs as providers migrate from WLR inclusive services (which use the full local loop) to standalone NGA services (which tend to use D-side of the local loop) and from copper-based services to fibre-based services.

5.409 Furthermore, the 2018 Pricing Decision determined that common corporate costs should not be recovered from services sold to customers in uneconomic areas. ComReg considered in the Consultation that the NBP IA footprint was an uneconomic area in terms of service provision, as it is characterised by longer than average line lengths, with fewer economies of scope along cable routes due to the dispersed customer base. The high incremental cost of providing services in the NBP IA means there is insufficient margin from customer revenues in the NBP IA to contribute to the recovery of common corporate costs with the result that all common corporate costs have to be recovered from those services sold in the Urban Commercial Area and Rural Commercial Area footprints (for further details see paragraphs 6.221 to 6.227 of the 2018 Pricing Decision).

5.410 A significant component of the common cost category relates to Network Rates (an average of €10m attributed to the access network elements in recent accounts), which are the rates that local authorities charge Eircom for operating its network in different parts of the country. Eircom's cost attribution methodology in the HCAs effectively treats network rates as a charge on the revenue-generating capacity of Eircom's network infrastructure, so the activity is mapped across all network elements based on the capital costs of those network elements. As a result, in the Consultation the majority of Network Rate costs were mapped to the access network elements that were relevant to the costs of services modelled in the ANM. Network rates were assumed to be a fixed cost, which does not vary as other costs do.

5.411 Common IT costs relate to general IT costs such as corporate systems and infrastructure but exclude IT systems which have a specific function such as billing systems, network management systems, etc. 60% of common IT costs were assumed to be fixed while the remaining costs varied depending on the amount of direct costs compared to the base case scenario.

5.412 Common Accommodation costs primarily relate to accommodation associated with the other common cost categories, e.g. office space associated with central finance, corporate strategy, central IT, etc. and 90% of common accommodation costs were assumed to be fixed.

5.413 Common Transport costs include transport management and 30% of common transport costs were modelled as being fixed.

5.414 Common Personnel Administration costs include the costs of the human resources function and 90% of personnel administration costs were modelled as being fixed.

5.415 The Other Common cost category in the Consultation includes corporate functions such as finance, legal, regulatory, strategy and other business management functions, and 100% of these costs were modelled as fixed. Working capital was included in the Other Common cost category.

5.416 The Opex module includes a worksheet for Input Parameters, which lists the percentage of fixed costs for each of the common cost categories discussed above. Changing those percentages affect how the costs scaled both between the TD and BU approaches in any year and between modelled years.

Cost allocations

5.417 As described in the Consultation, the Opex module uses volume information from the Service Demand module to facilitate the allocation of operating costs to services. Services include voice only PSTN-WLR[281], ADSL, FTTC, FTTH and business copper (Leased Lines). All data was disaggregated across the 1,148 exchange areas and the three footprints (Urban Commercial Area, Rural Commercial Area, and NBP IA).

5.418 As the ANM models an operator with Eircom's market share, service demand was modelled to reflect Eircom's current and planned deployments. Therefore, copper voice services were assumed to be present in all footprints (as Eircom currently has a universal service obligation for the provision of voice services), whereas FTTC was assumed to be present only in the Urban Commercial Area footprint (i.e., not in the NBP IA or Rural Commercial Area footprints). In the base year (2019), FTTH was assumed to be present only in the Rural Commercial Area footprint (consistent with Eircom's recent 300k FTTH deployment in this footprint), but then deployed across the Urban Commercial Area footprint to reflect Eircom's planned deployment of FTTH in urban areas. In the Consultation, ComReg assumed that NBI will be the only operator to deploy FTTH in the NBP IA.

5.419 The allocation of copper related costs across exchanges and footprints was performed separately for 3 aggregated cost groups:

(a) "commercial copper Opex" was comprised of copper network L&Bs and the associated indirect cost mark-up. This cost group was apportioned between commercial copper lines only;

[281] Although, as noted in paragraph 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.

(b) "whole country copper Opex" was comprised of all copper direct (including R&M and provisioning but excluding network L&Bs) and indirect mark-ups. This cost group was apportioned between all copper lines (commercial and NBP IA); and

(c) "total common cost" included all common corporate costs and was apportioned between all active commercial services (copper and fibre).

5.420 The same logic was followed in the Consultation for fibre related costs except that Opex was initially split between FTTC/FTTH services based on the active lines count. The cost per FTTH line in the NBP IA was set to zero because the model assumed that NBI would be the sole supplier of FTTH services in that area and the costs incurred by NBI were outside of the scope of the modelling.

5.421 The direct unit Opex costs including indirect mark ups for FTTC links representing the costs of the link between the local exchange and the fibre cabinet, were calculated by dividing the fibre costs associated with FTTC by the total number of FTTC links in the model year. These direct and indirect costs were then allocated across exchanges based on the distribution of active FTTC links, so the cost was set to zero in all exchange-footprints that did not have an FTTC link. As FTTC was only available in the Urban Commercial Area footprint, no FTTC link costs were attributed to the other two footprints.

5.422 Consistent with the determination in the 2018 Pricing Decision that common corporate costs should not be recovered from services sold to customers in uneconomic areas, only the services sold in commercial areas received an allocation of common corporate costs. To that end, the unit cost for common corporate costs was derived based on the number of copper and fibre services in the Urban Commercial Area and Rural Commercial Area footprints, and then costs allocated using the distribution of these services across exchange areas.

5.423 A 'common-cost per line' for the copper and FTTH services was then outputted to the Capex module for all relevant exchange areas and footprints for the model year. This resulted in the multiplication of the average common corporate cost per commercial line in an exchange and the count of commercial lines in an exchange equalling the total common corporate cost associated with that exchange. It also meant that, over time, the overall recovery of common corporate costs was maintained as customers migrate off Eircom's copper network onto its fibre network in the commercial areas. Furthermore, the expected migration of customers off Eircom's copper network in the NBP IA onto NBI's fibre network would not affect Eircom's ability to recover its common corporate costs as those customers currently do not contribute to common corporate cost recovery.

5.7.2 Respondents' views and ComReg's assessment

5.424 Three Respondents (Eircom, BT and Vodafone) provided views on ComReg's proposed approach to modelling costs in the Opex module in response to Question 6. Sky and ALTO did not provide a direct reply to Question 6 but ComReg has considered Sky and ALTO's general response in its assessment of responses to Question 6. Sky's advisers Analysys Mason did however provide specific comments to this question in its report.

5.425 In summary, all Respondents disagreed with various aspects of the modelling of Opex, with Eircom and Sky focussing on particular parameters used in modelling Opex costs and the other Respondents focussing on certain policy choices.

5.426 Sky, ALTO, BT and Vodafone all raised concerns with ComReg's proposal not to recover common costs from access services in the NBP IA. The Respondents argued that ComReg's approach fails to recognise that common costs are scalable, which means that the more lines a service has, the higher the level of common costs it attracts. Consequently, allocating all common costs on to lines/services in the commercial (Urban and Rural commercial) footprints would result in a form of cross subsidy from the Commercial area to the NBP IA.

5.427 Sky also criticised ComReg for not using available fault data to inform the attribution of direct repair and maintenance costs between the longer lines in the NBP IA and the shorter lines in the commercial footprints, and the modelling of SLU Opex. Sky's consultants Analysys Mason included analysis and discussion on issues relating to cost allocation and cost causation in its report in support of issues raised in Sky's submission.

5.428 ALTO raised similar issues to Sky in respect to the modelling of direct repairs and maintenance costs.

5.429 Eircom disagreed with multiple aspects related to the modelling in the Opex module. Eircom's arguments covered: the level of efficiency adjustments applied in the BU scenario; scaling of future repair and maintenance costs; forecasting of provisioning costs, time horizon for modelling the impact of storm events; cost allocation (including common costs); failure to consult on working capital; and various data/modelling errors. The BRG Report made several observations on the approach taken to model operating costs in the Opex module.

5.430 BT also found that Eircom's top-level margins were excessive.

5.431 ComReg's consideration of the key issues raised by Respondents and ComReg's final position are set out below under the relevant subheadings as follows:

(a) Common costs (paragraphs 5.432 to 5.526), which includes;

(b) Repair and maintenance (paragraph 5.527 to 5.576); and

(c) Provisioning costs (paragraphs 5.577 to 5.581).

Common costs

5.432 In response to both the ANM and CEI Consultations, several Respondents raised concerns in respect of ComReg's proposal to recover common costs only from services sold in the Commercial Areas, in line with the policy adopted by ComReg in the 2018 Pricing Decision. Several Respondents were concerned in particular that such a policy meant that as a result, operators in Commercial Areas will cross-subsidise services in the NBP IA. BT, ALTO, Sky and Vodafone all submitted that common corporate costs should be recovered from services in both the Commercial Areas and the NBP IA and that reasons underpinning ComReg's policy choice either no longer applied or were not supported by economic theory or international precedents. Vodafone noted that the approach followed by ComReg had been adopted in the 2018 Pricing Decision at a time when Eircom had no management focus on rural areas, echoing its Response to the 2020 CEI Pricing Consultation that, even in the short period since the 2018 Pricing Decision, there have been significant developments which could impact ComReg's approach to common cost recovery:

> "*It is a very important distinction to make that the previous decision that no common cost apply to the NBP IA was made a time when Eircom essentially had no management focus on rural areas. The basic service was delivered to customers without further investment. The NBP is now a very significant line of business for Eircom. It will require major corporate investment to support this new revenue line, a fact that the cost modelling for CEI must take into account*."[282]

5.433 There are in essence four main reasons for Respondents' (principally Sky supported by Analysys Mason) opposition to the recovery of common costs solely from services in the Commercial Areas, namely (i) developments since 2018 including that the constraint on PSTN-WLR prices as may have existed in 2018 no longer applies today; (ii) the fact that a line is economic or not is not relevant to its bearing of common costs and PSTN-WLR services may support a share of common costs allocated to NBP IA lines; (iii) the approach is not based on sound economic principles such that it could create a distortion, as it ignores a distinction which must be drawn between fixed and variable or scalable common costs; and (iv) variable, or scalable, common costs ought to be recovered also from services sold in the NBP IA.

5.434 In summary, as set out in detail below, having considered in detail the Respondents' submissions, while ComReg continues to be of the view that whether a line is

[282] Page 6 of Vodafone's Non-Confidential Response dated 8 January 2021.

economic or not is a key consideration to common cost recovery, there have been changes since 2018, albeit not to the scale suggested by Sky/Analysys Mason, and differences with the network being modelled then, which together mean that it is appropriate to revisit ComReg's policy and draw a distinction between fixed and variable or scalable common costs, and determine for each category of common costs whether they are scalable or not. However this is not done by reference to smaller operators or new entrants or because the overall common cost mark-up is different from international comparisons, as Sky suggests, but by reference to the scale and footprint of the HEO the network of which is being modelled, namely an HEO covering 80% of Ireland. Having conducted such a review, ComReg has changed the allocation of some common costs. ComReg has also modified its treatment of working capital. These issues are discussed as follows:

(i) Common cost recovery on a per service basis or as a mark-up (paragraphs 5.436 to 5.459);

(ii) Relevance of whether a line is economic or not (paragraphs 5.460 to 5.467);

(iii) Constraint on PSTN-WLR prices in the NBP IA (paragraphs 5.468 to 5.479);

(iv) Variable/scalable common costs (paragraphs 5.480 to 5.501);

(v) Network rates (paragraphs 5.502 to 5.507);

(vi) Common cost allocations to poles and ducts used by NBI in the NBP IA (paragraphs 5.508 to 5.511)

(vii) Treatment of working capital (paragraphs 5.512 to 5.518); and

(viii) Estimation of the amount of common costs, and allocation (paragraphs 5.519 to 5.526).

5.435 In consideration of the submissions to both this Consultation and the 2020 CEI Pricing Consultation, ComReg requested from consultants Dot Econ an assessment of ComReg's approach to the recovery of Eircom's common costs across copper services and the potential implications for civil engineering infrastructure ('**CEI**') access charges. Dot Econ's note with its assessment is published alongside this Decision.

Common cost recovery on a per service basis or as a mark-up

5.436 Among the reasons advanced by Sky/Analysys Mason in opposing the proposal that all common costs are recovered by active services in the commercial areas, is the contention that ComReg's approach to recovery is inconsistent with Ramsey pricing principle.

5.437 According to Analysys Mason, "*ComReg's approach to allocate 100% of common costs to lines in the commercial areas would only be consistent with Ramsey pricing if ComReg had evidence of an infinitely high elasticity in the non-commercial areas (i.e. the allocation of any common costs to those areas would lead to all subscribers deciding to stop paying for the service). This is implausible – customers living in the IA areas are not all infinitely elastic and hence can willingly contribute to Eircom's common costs*."[283] Furthermore, findings compiled by TERA Consultants in 2008 would provide evidence that PSTN-WLR services have a lower price elasticity than broadband services and, consequently, are more capable of absorbing a share of common costs. In the absence of elasticities data, Analysys Mason concludes that ComReg should use an EPMU approach to allocate common costs.

5.438 ComReg disagrees that the analysis of relative elasticities from 2008 is still relevant. A strong case could be made that broadband is now the more inelastic service given the growth of working from home and streaming services in recent years and the option to use VoIP or mobile for voice. ComReg's 2019 Residential Market Research Survey[284] considered end user behaviour in relation to fixed voice (including PSTN-WLR). 68% of those paying for landline but not using it say that it is because they use their mobile phone instead. 64% of those with a bundle including broadband and fixed voice indicated that the broadband was the most important product in the bundle, with just 5% considering the fixed voice component to be the most important product.

5.439 The market research found that 26% of those with fixed landline in a bundle, if the monthly price increased by €2, believed they definitely would or might change their behaviour, including for 31%, downgrade to a cheaper bundle, or look at other operators' offerings.

5.440 Market research conducted in 2017[285] for the purpose of ComReg's 2018 WLA/WCA Market Review Decision[286] considered end user behaviour in relation to fixed broadband. Of the total sample of users with broadband, 68% claimed to have never switched provider, and this was similar across bundled and standalone broadband users. This was highest with Eircom's customers, at 76%, and lowest among Sky customers, at 52%. The market research found that in response to a proposed €2 monthly price increase, respectively 81% of bundled broadband users, and 76% of standalone broadband users, would remain with their existing provider.

5.441 Together, these surveys support the view that end users are more sensitive to changes in the price of fixed voice (including PSTN-WLR) than they are to changes

[283] Section 3.3.2, page 23 of the Analysys Mason Report.

[284] See https://www.comreg.ie/publication/2019-residential-market-research

[285] 2017 WLA/WCA Market Research Survey. See https://www.comreg.ie/?dlm_download=redc-3a-3b-market-research

[286] https://www.comreg.ie/?dlm_download=3a-3b-market-analysis-decision, see paragraphs A6.29 and A6.30 the 2018 WLA/WCA Market Review Decision.

in the price of broadband, and that they place more importance on the broadband component of any bundle.

5.442 ComReg also disagrees with the proposition that, at this stage of service and network evolution in Ireland with increased FTTH deployment and the on-going migration from copper-based to fibre-based services in advance of copper switch-off, an EPMU approach is necessarily more appropriate than a per-service approach.

5.443 As Analysys Mason recognises, applying a mark-up for common costs in the ANM to cost downstream wholesale services would result in the longest and most costly lines (longer and thinner cables, more poles and longer duct routes) having to bear a higher proportion of common costs than the lower cost lines concentrated closer to the exchange. In the finalised ANM, the NBP IA footprint is modelled as having over 35% of annualised capex and over 15% of active lines. Consequently, applying a mark-up could allocate almost 3 times as much network rates to the incremental costs of an average active line in the NBP IA, compared to an average active line in the commercial footprints. As a result, the prices for PSTN-WLR and CG broadband services, which tend to be provided on the longest lines and are the principal services sold in the NBP IA, would have to recover a disproportionately higher share of common costs compared to other services which are predominantly in the urban areas.

5.444 Therefore, applying an EPMU approach in an access network model that is costing services with different average line lengths and costs can be highly distortionary and ComReg is of the view that any distortion arising from such an approach is likely to be greater than suggested in Analysys Mason's criticism that under ComReg's proposed approach, "*regulated PSTN-WLR prices pay a disproportionately lower share of common costs compared to other services which are predominantly in the urban areas, such as FTTC*."[287] Analysys Mason does not elaborate as to why this result might be more distortionary than an approach, such as EPMU, that would result in PSTN-WLR prices in rural areas paying a disproportionately higher share of common costs compared to other services which are predominantly in urban areas.

5.445 It is clear that applying a mark-up on higher cost copper lines as proposed by Analysys Mason would further reduce the margins associated with copper-based services provided to more isolated end-users and increase the likelihood that those already high-cost lines would have negative margins when priced using an average cost based on a mixture of longer and shorter lines.

5.446 Furthermore, the annualised costs of an access cable network do not vary in line with service volumes as most capital costs are fixed, which is of relevance during a period when incumbent operators will have dual access networks as they deploy new fibre networks alongside legacy copper networks. An EPMU based approach would mean

[287] Section 3.3.3, page 24 of the Analysys Mason Report.

that newly deployed fibre cables would be marked-up with common costs when fibre demand is low in the initial years after fibre deployment and copper cables will continue to incur a common cost mark-up in those years of declining demand before copper switch-off. This could lead to significant variance in the average common cost per service both between copper and fibre services in any particular year and across services over time (increasing for copper and declining for fibre as customers migrate of copper onto fibre). In contrast, using a per-service approach to common cost recovery should ensure that the recovery of common costs transitions from copper-based services to fibre-based services as customers migrate off the copper network onto the fibre network.

5.447 Analysys Mason also highlights that, in contrast to the per-service approach used for downstream wholesale services, ComReg applies an EPMU mark-up to recover common costs in the PAM and DAM modules to derive the charges for CEI Access. In the PAM each pole takes an equal share of common costs while in the DAM a duct length-related cost-based mark-up for common costs is applied. For Analysys Mason, applying different principles for the recovery of common costs for different wholesale services distorts incentives for operators to make efficient investment decisions choosing between: "*1) own deployment, 2) access to CEI poles/ducts according to the length of route needed, or 3) wholesale access per customer line irrespective of number of poles/length on that route.*"[288]

5.448 However, ComReg does not accept that these choices are distorted by ComReg's proposed treatment of common costs in the manner Analysys Mason suggests.

5.449 First, as the 2013 EC Recommendation recognises, the high cost of CEI deployment means that an access seeker is unlikely to seek to replicate a duct and pole network when it has the option to access an existing network. Consequently, whenever possible, it will seek access to existing CEI and an efficient competitive outcome is achieved if it can acquire access to the incumbent operator's CEI at prices based on the incumbent operator's costs and on equivalent terms to those enjoyed by the incumbent operator.

5.450 The existing costing approach for CEI access was established in the 2016 Access Pricing Decision. The costing approach for pole access attributes all pole-related costs based on the number of operators sharing the pole, while the costing approach for duct access is based on the average number of cables/ sub-ducts that share a trench when the cable deployments of Eircom and other operators using Eircom's duct networks are taken into account.

5.451 Second, as CEI access is priced on the basis of a price per pole or a length of duct, adopting an approach to common cost recovery that attributes the same common cost to every pole in a footprint and uses a length-related cost-based mark-up for

[288] Section 3.4.7, page 36 of the Analysys Mason Report.

common costs for duct related assets in the footprint is the best approximation of a per-service based approach for pole and duct access when there is almost no data on the expected level of demand for Generic CEI access in the future.

5.452 In the case of downstream wholesale services, more certain demand for these services means that a per-service based approach can be applied for downstream services and, as outlined in paragraphs 5.438 to 5.446, a per-service based approach is better at ensuring a smoother transition of common cost recovery between copper and fibre based services in the period where fibre is replacing copper as the main cable technology in the fixed access network and Eircom is expected to cease to be the main fixed access service provider in the NBP IA.

5.453 It is also the case that there will always be some level of distortion arising from the recovery of common costs regardless of the approach used. Even a Ramsey based approach, which considers demand side factors and is deemed to be preferable from a theoretical point of view, may result in some level of distortion as there is still likely to be a change in relative demand between services when some of those services receive a greater allocation of common costs than others.

5.454 Furthermore, relative elasticities for customers in the NBP IA areas are only relevant if those customers faced a different price when compared with the customers in the non-NBP IA areas. However, there is no such geographical differentiation in the retail prices charged to customers as retail prices generally apply nationally.

5.455 Consequently, the fact that customers in the NBP IA can be expected to face the same prices for the same services as their neighbours in the non-NBP IA areas indicates that the demand side factors are not as pertinent to the allocation of common costs as Analysys Mason asserts. It is also the case that a significant proportion of PSTN-WLR lines are in the non-NBP IA areas and, even if no common costs are attributed to NBP IA lines, there will still be a significant allocation of common costs to PSTN lines due to the common costs that are allocated to the large share of non-NBP IA lines that are also used to provide PSTN-WLR.

5.456 A mark-up approach does not consider demand side factors such as price elasticities but is in practice easier to implement than Ramsey pricing and has the advantages of being both objective and transparent, as the mark-up for common cost recovery is applied to all services on the basis of the direct costs of the network elements used by each service. However, a per-service based approach is also practical, objective and transparent as the same level of common cost is allocated to each type of service, e.g., an LLU based service would receive the same allocation as an SLU based service.

5.457 Applying a mark-up approach for downstream wholesale services would require Eircom to recover a greater share of common costs from LLU based services such as EVDSL as compared to SLU based services such as FTTC (the only ‘consumer’

of SLU). A mark-up would also allocate a greater share to longer lines where there is no prospect of commercial competition.

5.458 However, the LLU and SLU charges derived in the ANM are primarily used as inputs into the wholesale price for FTTC (SLU for cabinet based VDSL and LLU for exchange based VDSL) and a single VUA price is derived because the end-user does not have a choice as to whether they receive an FTTC or EVDSL service, as this depends on whether the local DSLAM the end-user is connected to is in a cabinet or the local exchange. Consequently, demand side considerations are less relevant when considering LLU and SLU as inputs into the costing of a downstream wholesale service such as FTTC and a per-service based approach ensures that each end-user is making the same contribution to common cost recovery regardless of the location of the serving DSLAM.

5.459 Therefore, ComReg does not consider that recovering the same level of common costs for the LLU and SLU cost inputs into the NGA Cost Model is any more distortionary, either for end-users or rival operators, than an approach which results in a greater allocation of common costs to the LLU input than the SLU input. ComReg also considers, as outlined above in paragraph 5.446, that per service is more suitable than a mark-up approach when customers are migrating of a copper network onto a fibre network. Consequently, ComReg is of the view that it is reasonable to apply a per-service based approach when pricing downstream wholesale services and a mark-up approach when pricing CEI access.

Relevance of whether a line is economic or not

5.460 According to Analysys Mason for Sky, ComReg's decision to not allocate common costs to services sold in the NBP IA on the basis that lines in the NBP IA are uneconomic is also inconsistent with the definition of common costs, as "*Common costs are, by definition, necessary for all access services in all geographies. Whether any individual line, customer or service is considered uneconomic or not, does not prevent revenue earned from that customer or service from contributing to the recovery of the operator's common costs*."[289]

5.461 Even when the common cost is considered to be a fixed cost that will not vary regardless of the scale and scope of the fixed access network, which means that no specific service causes these costs, Analysys Mason argues that "*any line or service would not be functional if those fixed costs were not incurred*". This leads Analysys Mason to the following two conclusions:

> *"All revenue earned by all services can be considered equally suitable revenue to pay for the fixed common costs.*

[289] Section 3.3.1, page 22 of the Analysys Mason Report.

It does not matter whether an equal contribution to common costs then suggests that any individual service or line might have lower (or negative) profitability than if the common costs were not contributed by that service, provided that the operator does not over- or under-recover its common costs in total."[290]

5.462 For Analysys Mason, accordingly, the only relevant consideration to the extent that a line or service should contribute to the recovery of fixed common costs is the fact that that line or service generates a revenue, not whether that line or service is economic or uneconomic.

5.463 However, ComReg remains of the view that whether a line or service is economic or uneconomic is a key consideration for common cost recovery as a line or service that does not, on average, generate a positive margin (i.e., where the additional revenue generated exceeds the long run incremental costs incurred in providing the line or service including a reasonable return on capital employed) will not be in a position to contribute to the recovery of common costs.

5.464 ComReg recognises that it is important that any assessment of profitability takes a long-run view, particularly for access network services, where operators invest in infrastructure that continue to support services many years after the asset is first deployed. This means that the fact that it may be many years before Eircom's investment in FTTH turns profitable does not mean that FTTH services should not be considered as commercial or economically viable services until such a time as they report a profit.[291]

5.465 This being the case, there are, nevertheless, sub-sets of access services that are not profitable simply because they are on longer lines to more isolated premises and therefore require significantly more assets in their provision. For these more costly lines, their average long run incremental cost, even before the inclusion of common costs, can be in excess of the incremental revenue that Eircom can generate from them as the prices tend to be based on the average cost of a line.

5.466 The fact that margins rather than revenues are more relevant when considering the recovery of common costs for fixed access services is supported by the approach used to assess the burden that the Universal Service Provider ('**USP**') incurs as a result of the Universal Service Obligation ('**USO**'). This usually involves comparing

[290] Section 3.3.1, pages 22 to 23 of the Analysys Mason Report.

[291] Eircom argues against ComReg's proposed per service approach to the recovery of common costs between copper and fibre services, on the basis that, over time, it attributes more costs to FTTH while reducing the common costs allocated to FTTC, which, Eircom argues, reduces the cost-oriented price for FTTC and puts upwards pressure on FTTH prices, thereby distorting migration incentives for end users to move from FTTC to FTTH, paragraphs 276 – 280 of Eircom's Non-Confidential Response dated 8 January 2021. However, the per service approach attributes common costs on the basis of relative service numbers, so the unit costs would be the same for both FTTC and FTTH. Consequently, while the per service approach will change the total amount of common costs allocated to FTTC and FTTH as relative service numbers change, it should not give rise to relative changes in the average unit costs.

the USP's profitability with and without the USO, by determining the revenues that would be foregone and the costs (including depreciation and other long run costs) saved if the operator no longer provided loss making services as part of its USO. Similarly, in deciding whether to extend its fixed access network, an efficient operator will compare the incremental costs involved in extending its network against the additional revenues it could generate because of that incremental investment. Only if the additional revenues exceed the incremental costs will it proceed with the network extension. Fixed common costs will not form part of the operator's assessment as they will not vary even if the network is extended.

5.467 Therefore, ComReg remains of the view that profitability rather than revenue is a key consideration when considering the recoverability of common costs.

Constraint on PSTN-WLR prices in the NBP IA

5.468 While PSTN-WLR prices are not being set in this Decision, the basis for the allocation of common costs to PSTN-WLR in the NBP IA will impact the level of costs allocated to other services that are cost oriented such as FTTC and CG SABB.

5.469 Analysys Mason considers that ComReg is mistaken in following the same approach from the 2018 Pricing Decision to common cost recovery in the ANM, whereby common costs are allocated only to active services in the commercial areas, because the constraint on PSTN-WLR prices as may have existed then no longer applies today and PSTN-WLR services may support a share of common costs allocated to NBP IA lines.

5.470 In the 2016 Access Pricing Decision, ComReg set the prices for PSTN-WLR with reference to the national average cost of all copper lines on Eircom's access network; in the 2018 Pricing Decision, ComReg set the prices for FTTC services on the basis of a lower average cost, given that shorter lines are used to provide FTTC services. The ANM, in the same way as the Revised CAM did, calculates the prices for services such as FTTC and WLR using a network element (NE) based costing approach, i.e., the model first calculates the costs of various NE's and then determines the costs of the services that use those NEs based on the extent the NEs are used by each service (NE unit costs by usage factors).

5.471 In the 2018 Pricing Decision, ComReg recognised that the price reductions being introduced for FTTC based services would reduce the margins on the urban based FTTC lines, which previously had helped fund the losses on the more expensive lines that were above the national average-based PSTN-WLR price. In setting the approach used to determine the costs of the shorter lines used by FTTC/EVDSL services, ComReg sought to mitigate the risk of under recovery for Eircom, as follows:

5.472 First, ComReg adjusted the unit cost inputs for use in the NGA Cost Model for FTTC/EVDSL to reflect the standalone costs of the network required to pass the customers within the footprint that can be targeted by these services and to recover those costs specifically from the customer numbers that can avail of a commercial NGA service. This scale adjustment was derived with reference to the percentage (80%) of premises that were targeted with commercial NGA services (including Eircom's Rural FTTH network) compared with the total number of premises nationally. ComReg considered that the revised approach better informed the build or buy decisions for all operators deploying commercial NGA networks.

5.473 Second, ComReg decided that common costs were to be recovered based on a cost per service rather than as a mark-up on direct network costs. Furthermore, on the basis that the national average PSTN-WLR charges derived in the 2016 Access Pricing Decision did not provide a sufficient margin above the direct costs of longer rural lines that could contribute to the recovery of general overheads and common costs, ComReg determined that it was necessary to recover all common costs from the lines to those premises that Eircom was targeting with an NGA service. As a result, the average cost of the 80% of lines that were in scope for either Eircom's FTTC or Rural FTTH service offerings was increased to recover all of the common costs – and the charge on longer rural lines in the NBP footprint was set on the basis that they would make no contribution to the recovery of common costs.[292]

5.474 ComReg recognises that the move away from a nationally regulated price for PSTN-WLR as was signalled in the 2020 FACO Consultation could have reduced the PSTN-WLR constraint identified at the time of the 2018 Pricing Decision and that a 'headroom' for PSTN-WLR prices to increase, as suggested by Analysys Mason,[293] may have arisen including as the result of a lower applicable WACC than applied in 2018.

5.475 Dot Econ also agrees that services in the NBP IA should contribute to the common cost recovery when "*there is headroom for copper services to make a contribution to common costs, according to the well-established economic principle that common cost recovery should be spread widely to minimise the price impact of marking up any particular service*."

[292] Sky's assertion, (paragraph 26 of Sky's Non-Confidential Response dated 8 January 2021), that ComReg's approach "*ignores that Eircom has been running a commercial enterprise in the NBP-IA for years*" appears to make no allowance for the significant price reductions ComReg introduced for copper access services in the 2016 and 2018 Pricing Decisions, while Sky's point that "*OAOs (in particular NBI) are capable and exhibited a willingness to pay commercial prices for access in the NBP IA*", disregards the facts that the prices paid by OAOs for downstream wholesale services have been national prices, which means that they are the same regardless of where the service is provided, while NBI's willingness to purchase cost oriented services in the NBP IA is because the losses it expects to incur will be offset by a state subsidy.

[293] Section 3.3.4, page 28 of the Analysys Mason Report.

5.476 ComReg notes, however, that any 'headroom' may be rather limited, and certainly more limited than the €11.5 million calculated by Analysys Mason.[294] Analysys Mason's calculation fundamentally misrepresents how prices for copper-based access services are derived since the 2018 Pricing Decision. The ANM includes a total active copper line count of 1.28M, but, since the 2018 Pricing Decision, not all active copper lines are priced to recover the same level of copper related costs as PSTN-WLR. Given that in the 2018 Pricing Decision ComReg set the prices for VDSL based services with reference to the lower LLU and SLU costs that are associated with the shorter lines typically used to support EVDSL and FTTC services, the relevant active line base is not the total 1.28M national copper active lines on the access network but only the sub-set of copper access lines that recover copper related costs on the same basis as the PSTN-WLR price. These include primarily standalone PSTN-WLR lines and ADSL lines but exclude FTTC/EVDSL. Hence, the relevant line base for PSTN related pricing is circa. 0.4M active lines in Q1 2021. This means a 'headroom', based on the Consultation prices for PSTN-WLR, closer to €3.5M than the €11.5M identified by Analysys Mason.

5.477 In addition, this figure will have declined further since the Consultation version of the ANM as the finalised ANM allocates more costs (increased R&M costs and E-Side cable costs) to longer copper lines predominantly used by PSTN and CG SABB and less to the lines used for FTTC. This will increase the difference between the level of copper loop costs recovered from FTTC based services and PSTN-WLR/CG SABB services and increase the copper loop uplift that would be need to be applied to the average line cost per exchange to ensure the prices for legacy services are at a level that enables Eircom to fully recover its copper access network costs across all services carried on the network (this is discussed in more detail in Section 6.5). Furthermore, the on-going decline in PSTN and ADSL lines each year until copper switch-off will continue to put upward pressure on the unit costs of legacy copper services.

5.478 Also, as noted in paragraph 5.615, Eircom has confirmed that most recent investment in replacing copper cables has been on the overhead routes in smaller rural exchange areas to enable it to achieve regional service assurance targets. In the future, copper switch-off could also compress the timeline for the recovery of these investments, thereby further increasing the annualised costs to be recovered against the declining volume of legacy services such as PSTN-WLR or CG SABB, which are the predominant users of these rural cable routes.

5.479 Therefore, ComReg does not consider that there is sufficient headroom to justify an allocation of non-incremental common costs to active lines in the NBP IA.

[294] Section 3.3.4, page 28 of the Analysys Mason Report.

Variable/scalable common costs

5.480 Both Eircom and Sky disagreed with the proposed treatment of certain costs as common costs, or as fixed common costs, Analysys Mason contended that "…*a material proportion of the modelled common costs are actually variable costs which scale with the number of lines and associated line costs elsewhere in the access network*" when as a matter of principle, "*Variable costs which scale with the number of lines and associated line costs should be treated as non-common and allocated with other non-common costs.*"[295]

5.481 Analysys Mason contends that ComReg included variable costs (i.e., costs which vary with the number of access lines) in the pool of common costs, which are indirect costs that should be treated in the same way as other indirect (non-common) costs in the ANM. According to Analysys Mason, "*The specification of fixed (non-scalable) common costs, as set in the ANM, should by definition apply to any fixed access network operator in Ireland, regardless of footprint, scale or scope*."[296]

5.482 ComReg does not accept that it is necessary that a cost should be incurred equally by all network operators active in Ireland before it can be categorised as a fixed common cost in the ANM. ComReg accepts that footprint, scale and scope are relevant, as suggested by Sky/Analysys Mason. The relevant question, however, is whether the categorisation of common costs is consistent with the scale and footprint of the modelled HEO, namely an HEO with Eircom's scale, scope and presence.

5.483 Furthermore, it appears to ComReg that in determining for the purpose of the ANM whether a cost ought to be treated as a fixed or variable common cost, the key consideration in the forthcoming price control period is the extent that common costs are likely to vary having regard to the changes in service demand and footprint that Eircom is expected to face in the near future.

5.484 In other words, the appropriate level of common costs is not determined by reference to the costs of the smallest network operators in Ireland, but by reference to the level of common costs consistent with an HEO that is transitioning from an access network operator that offers fixed access services to every premises in the country to one that provides fixed access services to only 80% of premises nationally and becomes a CEI Access Provider to NBI in the remainder of the country.

5.485 The NBP is expected to have a significant impact on Eircom's access network both in terms of the volume of fixed access services that Eircom provides into downstream wholesale markets and on the geographic area that it will cover as a fixed access provider. As a result, the ANM needs to give specific attention to the incremental costs associated with all of Eircom's demand in the NBP IA and also the costs

[295] Section 5.3.7, page 61 of the Analysys Mason Report.
[296] Section 3.3.5, page 29 of the Analysys Mason Report.

associated with a standalone operator for the commercial footprints, including the direct and indirect network costs and the associated level of common costs. There are many costs that are unavoidable for an HEO capable of serving 80% of all premises, that would not be incurred by a new entrant.

5.486 ComReg notes, however, that for many of the costs that ComReg classified as common, the issue of cost causation is less clear cut than Analysys Mason suggests, and some judgement is required to determine the extent that the costs will scale due to the changes in overall service demand expected in the ANM or to changes in the type of services offered. This is particularly the case when considering a period when the incumbent operator is expected to replace copper cables with fibre cables in the commercial areas and is also expected to cease to be the main fixed access service provider in the NBP IA. One example is Network Rates, discussed below, while another are the costs associated with Eircom's Accounting Separation and Cost Accounting obligations.

5.487 To date, Eircom is the only operator in Ireland that is subject to Accounting Separation and Cost Accounting obligations and the associated costs are treated as a common cost, as they are not specific to any particular service or network footprint. These obligations are imposed on Eircom owing to its status as SMP operator in different fixed line markets. Consequently, the associated costs do not scale in any meaningful way with service volumes, yet they are materially above the total amount of common costs that might be associated with a new entrant. The fact that no other Irish operator incurs similar costs highlights the extent to which comparisons with other operators is difficult.

5.488 In that context also, ComReg does not agree that comparing common cost mark-ups across jurisdictions allow conclusions to be drawn as to how specific costs ought to be categorised. The Analysys Mason Report included a table that benchmarked the level of common cost recovery evident in the ANM with publicly available models from other NRAs, where it identified average common cost mark-ups of 4.49% and 1.31% in Sweden and Denmark respectively, compared to mark-ups in excess of 20% in the ANM.[297]

5.489 While Analysys Mason did not provide the detail behind its calculation of the common cost mark-ups for the Swedish and Danish cost models, ComReg notes that the relatively low common cost mark-ups that Analysys Mason identified are not consistent with other information that is publicly available for these models. For example, the 1.31% mark-up cited by Analysys Mason for the Danish model is much lower than the non-network overhead percentage mark-ups listed in the public version of the LRAIC model for fixed networks developed for the DBA by Axon Consulting Partners, which was finalised in 2020[298]. This model includes different

[297] Figure 5.9 of the Analysys Mason Report.

[298] https://erhvervsstyrelsen.dk/lraic-fastnet-modelarbejde

categories of overheads to be recovered as a mark-up on total LRAIC costs, including: General & Administrative (4.5% mark-up on total costs), IT (1.5% mark-up on total costs) and Wholesale and Commercial (1.6% mark-up on total costs). Each of these individual mark-ups is in excess of the total 1.31% common cost mark-up that Analysys Mason has identified.

5.490 Furthermore, ComReg have found evidence of network cost models with much higher mark-ups than those listed by Analysys Mason, including a network cost model developed for the Norwegian regulator by Analysys Mason in 2018[299] that calculates the common cost mark-up to recover business overheads to be in excess of 34%, as per EPMU percentage in the following table extracted from the public version of the model:

Figure 19 Analysys Mason's modelling of common cost mark-up in Norway

analysys mason

Cost by service

Calculation of EPMU

Total common costs

	Total
Business Overheads (Capex)	250,519,585
Business Overheads (Opex)	261,624,665
Total	512,144,250

Total incremental costs by asset

Cost category	Total
Residential wall socket	2,450,931
Building termination unit: Small	11,048,508
Business Overheads (Capex)	-
Business Overheads (Opex)	-
Total	**1,502,276,285**

EPMU

Total costs	2,014,420,535
Total common costs	512,144,250
Total incremental costs	1,502,276,285
EPMU	34.09%

5.491 Benchmarking with international models is also complicated by the fact that there is likely to be inconsistencies between what is categorised as a common cost and what is categorised as a direct or indirect cost in the different models. Sky notes that the LLU and SLU common cost mark-ups in the ANM appear to be over six times the average mark-up observed in Denmark, while the Danish model appears to apply an average mark-up that is over three times the percentage in an equivalent Swedish model.[300] However, as almost one third of the common costs in the ANM are Network Rates (discussed below), the percentage mark-ups evident in the Scandinavian models would not even be sufficient to allow for the full recovery of the Network Rates costs incurred by Eircom. Consequently, it is unclear if the other access network

[299] https://www.nkom.no/ekom-markedet/kostnadsmodeller-og-wacc#lricmodell_for_faste_aksessnett

[300] Paragraph 67 of Sky's Non-Confidential Response 8 January 2021.

models include a similar type of cost to Network Rates and, if so, what the level of this cost is and whether it is categorised as a common cost or an indirect cost.

5.492 Therefore, rather than attempting to benchmark costs in the manner proposed by Analysys Mason, ComReg's approach in modelling Opex costs has been to carry out a detailed review of the cost data included in Eircom's AFI submissions to categorise each of the activity codes as either direct, indirect, network related or common cost, subject as regards the latter to the change in approach outlined below.[301]

5.493 Accepting that scalable common costs in the NBP IA ought to be recovered from services provided in the NBP IA, ComReg has undertaken a further review of each of the cost items that are classified as common costs to determine to what extent these costs can be further categorised as a fixed cost or as a variable (scalable) cost from the point of view of a standalone operator offering services to 80% of premises as distinct from one offering services to 100% of premises.

5.494 The review focused on the extent that common costs might vary or scale when all service demand (current active lines and future CEI access demand) in the NBP IA is removed. This is to ensure that any costs that are "caused" by the NBP IA service sets are factored into the prices for NBP IA based services. For example, if circa 15% of active lines are in the NBP IA, ComReg has estimated the extent that various common cost categories such as IT, Transport, Corporate Management and Finance would be affected if Eircom's fixed access network were to no longer to serve these lines.

5.495 The reduction in common cost categories would arise as a result of the need to support less resources following the withdrawal of copper access services in the NBP IA. For example, Eircom will require fewer front-line maintenance staff and vehicles when it ceases all copper service in the NBP IA and this should give rise to savings in central personnel and transport management activities, which, in turn, can give rise to savings in central IT and central finance activities. The review was intended to address concerns that the recovery of common costs might give rise to potential cross subsidies between services sold in the NBP IA and services sold in the commercial footprints.

5.496 It is also the case that, since the Consultation, ComReg and its advisers Cartesian updated the ANM to address a range of costing issues raised in various responses to the Consultation and these updates have resulted in a significant increase in the derived copper line cost for CG SABB and PSTN-WLR[302]. The main updates that have given rise to this increase include a revision to the allocation of Opex that

[301] The 2019 FY AFI data included costs listed against almost 700 different activities/asset classes. Moreover, while the cost categorisation uses input from Eircom, it does not rely on Eircom's classifications as claimed by Analysys Mason but is mainly led by ComReg.

[302] As mentioned earlier, while ComReg is not setting the price for PSTN-WLR in this Decision, ComReg is modelling the cost of PSTN-WLR as an access service.

attributes more R&M costs to lines in the rural exchanges, where these services tend to be dominant, and an increase in the unit cost of E-Side cables as a result of the lower use of E-Side cables due to the increase in SLU based services such as standalone FTTC.

5.497 However, ComReg accepts that, regardless of whether there is any 'headroom' or not in copper services provided in the NBP IA, if an element of common costs is expected to scale in any way due to a change in the volumes or type of NBP IA services, then cost causality requires that prices for services in the NBP IA should allow for a contribution to the recovery of those costs.

5.498 ComReg has reviewed the individual activities within each of the functional cost categories (IT, Personal Administration, Accommodation, Transport Management, Finance, General Management, Corporate Services, etc.) that comprise the common cost pool to determine which activities are likely to scale if Eircom's overall level of downstream access services were to change significantly. The ANM estimates in alignment with Eircom's confidential submission that, in 2019, there was circa [✂ ✂]K active services on Eircom's network in the NBP IA footprint and the review considered which activities within the various functional cost categories might scale due to the cessation of these wholesale services.

5.499 ComReg found that while, for the reasons discussed in detail below Network Rates were not scalable in respect of copper access services such as PSTN, circa 24% of the costs in the other common cost categories could scale to some extent due to changes in the level of downstream NBP IA wholesale services.

5.500 Consequently, the modelling of common costs in the ANM has been updated to included two sub-categories, comprising of:

(a) Common costs that could scale to some extent due to changes in the level of downstream NBP IA wholesale services. This sub-category of common costs is recovered on a per service basis across all downstream access services, including those PSTN-WLR based services sold in the NBP IA footprint.

(b) Common costs that are unlikely to scale due to changes in the level of downstream NBP IA wholesale services. This sub-category of common costs is recovered on a per service basis across all downstream wholesale services sold in the commercial footprints only.

5.501 ComReg is of the view that revising the allocation of common costs in this way should address any concerns that the pricing of downstream wholesale services in the commercial areas may be cross-subsidising services sold in the NBP IA.

Network rates

5.502 According to Analysys Mason, "*ComReg assumes that network rates of around EUR10 million are a fixed common cost for an access network operator regardless of scale and therefore independent of the size of the network (number of lines, geographies of network deployed)*". If this was correct, Analysys Mason says, "*then the access network operators NBI and SIRO would be expected to have a similar level of network rates cost to that of the ANM operator. This is implausible, given the way network rates are determined…"*[303] and ComReg ignores the reality of rateable valuation, namely:

> "*Network rates are determined based on a global valuation, with Eircom treated as a public utility undertaking… The rateable value of Eircom's network is directly linked to the value of every pole, wire and building in the network. The rateable value is also geographically distributed, and would specifically reduce when NBPIA enters – because an efficient operator would appeal the reduction in its rateable value with evidence of the removal of hundreds of thousands of copper cables and the withdrawal of active services in the IA*."[304]

5.503 Analysys Mason also notes that Eircom's Net Annual Value is apportioned by county and surmises that the apportionment by county in some way reflects the network asset value in those areas.[305] According to Analysys Mason, Network Rates "*should be considered a variable cost associated with every element and should be treated as a mark-up on all annualised costs*".[306]

5.504 However, it is not the case that network rates can be directly linked to "*the value of every pole, wire and building in the network*" as Analysys Mason contends. Analysys Mason would be correct if the Valuation Office derived the rateable valuation of Eircom's fixed network using an approach such as a depreciated current replacement cost ('contractors') method – where the rateable valuation is arrived at as a percentage of the current replacement cost of the network assets. In that case, the rateable valuation would have likely increased in recent years as Eircom deployed additional fibre cables alongside its existing copper cables as part of its Rural FTTH deployment. Instead, however, the valuation was reduced from €84.7M to €80M.

5.505 ComReg understands in this regard that the rateable valuation for Eircom's fixed network is derived using a global valuation approach, which considers its overall performance by assessing general profitability with a view to determining a 'Net

[303] Section 3.3.5, page 29 of the Analysys Mason Report.
[304] Section 5.3.6, page 60 of the Analysys Mason Report.
[305] Section 5.3.6, page 60 of the Analysys Mason Report. Analysys Mason also notes that Eircom's pole access licencing agreement includes a proposal to pass a portion of Local Authority Rates to access seekers which is calculable based on the pole route accessed. However, under the current price control for pole access, the regulated rental price for pole access includes an allowance for the recovery of network rates, and Eircom may not accordingly recover network rates by way of separate additional charge.
[306] Section 5.3.6, page 61 of the Analysys Mason Report.

Annual Value', similar to what a hypothetical tenant / operator would pay for the use of the network (this is also known as the Receipts and Expenditure Method). Under such an approach, the rateable valuation is not directly linked to the value of every pole, cable and building in Eircom's network but, instead, is derived as a single liability for the entire network and is linked to the profit that Eircom has been able to achieve from the communication services that it sells using that network. As a result, the primary consideration in the valuation process is not the costs of the network assets and buildings but the profits that Eircom can generate using those assets and buildings.

5.506 ComReg also understands that the national valuation is allocated to the individual local authorities in proportion to each local authority area's share of the national population as recorded in the most recent census. ComReg considers that it is implausible that population distribution would correlate to the distribution of network asset values across each area as the average network value per population will vary significantly between areas, being lower where the population density is highest. In fact, the distribution of active lines would tend to show a better correlation with the overall population distribution than network costs.

5.507 Consequently, ComReg does not accept that Network Rates are likely to vary in the manner suggested by Analysys Mason. ComReg remains of the view that Network Rates should be regarded as a fixed common cost in commercial footprints to be attributed on a per service basis when allocating costs to downstream active services such as PSTN-WLR,[307] CG SABB, FTTC and FTTH.

Impact of the review of common costs on CEI Access charges for NBI in the NBP IA

5.508 ComReg's review of common costs also considered the extent that common costs might vary for an operator providing CEI Access services in the NBP IA. Eircom is expected to continue to be a provider of CEI Access in the NBP IA after it has ceased being a provider of downstream wholesale services in the fixed access market there. Consequently, there may some activities within the common cost categories that will scale as a result of the level of CEI Access provided by Eircom to NBI in the NBP IA and that may be relevant to a future update of CEI Access charges. However, Eircom is not expected to require the same level of resources to support CEI Access in the NBP IA as would be required to maintain and operate a copper access network in the NBP IA. In particular, the maintenance staff required to fix cable faults[308] will no longer be required when Eircom retires its copper access network. Consequently,

[307] As mentioned earlier, while ComReg is not setting the price for PSTN-WLR in this Decision, ComReg is modelling the cost of PSTN-WLR as an access service.

[308] The majority of the reduction in the size of the R&M teams between the BU scenario and the TD scenarios in the ANM is associated with the lower level of faults that is achieved by replacing the older overhead copper cables that are deployed in rural areas with newer cables that are significantly less fault prone. Consequently, the modelled reduction in team sizes is greater in those regions with exchanges that comprise a larger number of rural lines than in the regions where a greater proportion of the lines are in urban areas.

the level of common costs such as personnel or transport management is not expected to be as material in the case of CEI Access activities as they currently are for PSTN-WLR.

5.509 Nonetheless, there are also common cost categories that are more relevant to the CEI Access business than they are to copper based services such as PSTN-WLR. For example, cost oriented prices for pole and duct access are derived on the basis that Eircom can make a positive return on the investment associated with each pole and duct segment that is accessed by NBI. Therefore, Eircom's overall profits should increase as a result of being able to replace low margin / loss-making fixed line services in the NBP IA with the CEI rental charges from the assets (e.g. more than 1M poles) that NBI will be renting from Eircom in the NBP IA, as the CEI charges are directly linked to the costs of the individual assets in a way that the averaged charges for access services such as CG SABB are not. Consequently, a contribution to the recovery of the costs of Network Rates has now been included as part of the common costs relevant to the provision of CEI Access services in the NBP IA, as such services will increase Eircom's profitability, when compared with the downstream copper based services that are provided in the NBP IA at negative margins. Similarly, Eircom will be expected to revise its network studies and cost accounting reports to take account of the use of poles and ducts by NBI. Therefore, a contribution to the recovery of common costs associated with Eircom's cost accounting and regulatory reporting obligations could also be relevant to CEI Access services in the NBP IA.

5.510 On that basis, the final ANM modelling attributes a sub-set of common costs in the form of a mark-up based on the annualised cost of all relevant network assets (including CEI assets) in the Commercial Areas and CEI assets in the NBP IA on the basis that Eircom will eventually withdraw its copper cable network in the NBP IA. Also, to avoid double recovery, the ANM discounts the common costs to be recovered from commercial downstream wholesale services to recognise the amount of these costs that are being recovered through CEI Access charges.

5.511 The revisions to the common cost allocations in the ANM should ensure that all long run costs that might not be incurred if either the copper-based services in the NBP IA footprint or the CEI access services in the NBP IA footprint were not provided are attributed to those service sets. This should address any concerns that there might be a cross subsidy to those services from the services sold in other parts of the network. For example, the costing approach for copper-based services in the NBP IA, such as PSTN-WLR and CG broadband, is similar to the costing approach that is used when making a USO assessment, in that it identifies all the costs that would not be incurred if the copper-based services in the NBP IA were not provided, i.e., the costs that Eircom can expect to save in the long run when it withdraws all copper-based services from the NBP IA.

Treatment of working capital

5.512 Both Sky/Analysys Mason and Eircom disagreed with the treatment of working capital in the ANM. Eircom objects to the treatment of elements of Working Capital in the ANM as common cost noting that this "*negative cost is treated as being 100% fixed (i.e., no decline in direct costs or revenues will give rise to a decline in the negative working capital)*", a treatment which would be "*without precedent"* in previous ComReg's cost models and a matter which ComReg would have failed to consult on. According to Eircom, "*working capital of eir in a given year is a function of commercial financial decisions*". Eircom also objects to ComReg's use of the AFI reports from Eircom's HCAs to quantify the working capital in the Opex module on the basis that the HCAs do not include internal debtors, i.e. notional debtors associated with the internal revenues due to the sale of wholesale access service to the downstream retail business.[309]

5.513 Analysys Mason also disagreed with treating working capital as a 100% fixed cost and proposed that the Working Capital numbers in the AFIs "*should also be carefully analysed to ensure that it does not include any inefficiently high amounts in the actual AFIs (e.g. excessively high amounts of cash held as working capital assets)*".[310]

5.514 By way of preliminary comment, by consulting on the design of the ANM, ComReg did consult on the proposed treatment of working capital in the ANM thereby allowing both Sky and Eircom to submit views in that respect. There is accordingly no basis to Eircom's complaint that ComReg have failed to consult on this issue.

5.515 In terms of the proposed treatment itself, it is simply not the case that the inclusion of working capital is without precedent insofar as ComReg's costing models are concerned. Working capital was included in the Revised CAM, albeit not as a common cost. For example, one of the most significant components of working capital for the access network elements modelled in the ANM, relates to the Asset Retirement Obligation ('**ARO**') associated with poles and the Revised CAM did include ARO related provisions associated with future pole disposals. Wholesale Specific costs in the Revised CAM were based on an analysis of the allocation of Carrier Billing and Administration costs to the wholesale access statements in Eircom's HCAs and the Mean Capital employed of the Carrier Billing and Administration elements would have included working capital such as the debtors associated with revenues for external sales of wholesale access services. Prior to the Revised CAM, costing models used by Eircom to support the cost orientation of call conveyance and interconnect charges on Eircom's fixed network were based on Eircom's Top Down CCA/LRIC accounts and the modelled costs included all working capital that were reported against core network elements in the accounts.

[309] Paragraphs 104 to 108 of Eircom's Non-Confidential Response dated 8 January 2021.
[310] Section 5.3.5, page 60 of the Analysys Mason Report.

5.516 Eircom's assertion that "*working capital of eir in a given year is a function of commercial financial decisions*" is an over-simplification, as there are significant elements of working capital that are inherent to the operation of the network and are therefore relevant to the costs of an HEO. Some components of working capital are staff related cost items such as the accruals associated with the Employee Superannuation fund. These are attributed to access network elements on the basis of pay and consequently a substantial element is allocated to the access network element in the accounts.

5.517 As for notional debtors associated with internal sales to Eircom's downstream retail arm, ComReg would note that debtors are usually identified with specific services and would, therefore, be included as part of the Wholesale Specific costs associated with the Carrier Billing network elements rather than as a common cost. Although, as noted above, working capital has been included as part of the Wholesale Specific costs in previous costing models, there is no precedence for the inclusion of notional debtors as part of that working capital.

5.518 ComReg accepts, however, in relation to the treatment of Working Capital as a fixed cost that does not scale in line with either costs or revenues, that it is not unreasonable to expect that many elements of working capital will vary in response to changes in revenue or costs. Consequently, the ANM has been updated to include working capital as a fully variable common cost that is allocated across all active services on the access network. Furthermore, to ensure that the level of working capital included as a common cost in the ANM is reflective of a typical year, it is now based on the average working capital attributed to the copper access network elements rather than the combined copper, fibre and provisioning network elements. This is because the attribution of working capital to copper access network elements has been relatively stable in the recent accounts, while the amount of working capital attributed to fibre and provisioning network elements tended to fluctuate year on year.

Estimation of the amount of common costs and allocation

5.519 A number of issues were also raised by Sky and Eircom in respect of ComReg's estimation of the amount of common costs and/or their allocation.

5.520 First, Analysys Mason suggested that ComReg should not allow the reclassification of some costs in Eircom's accounts to increase the amount of common costs. In particular, the Analysys Mason Report notes the number of administrative staff recorded in Eircom's accounts "*increased by 155 employees from 2019 to 2020 which is inconsistent with Eircom's broader initiative of reducing headcount ... This inconsistency hints at a possible reclassification of sales/operating staff to*

administrative functions. Any such reclassification should be excluded from common costs."[311]

5.521 However, the note to Eircom's statutory accounts states that "*The number of Administration FTEs increased in the year-ended 30 June 2020 as a result of a reclassification of staff, principally in sales support and IT*."[312] Cost causality means that sales support staff would not be attributed to a common cost activity, and ComReg has confirmed with Eircom that this reclassification of staff did not affect the recording of costs in Eircom's Activity Based Costing system, which is used to prepare the Separated Accounts. It is also the case that the accounts are audited each year and consistency in the year-on-year treatment of costs is one of the regulatory accounting principles that are applied to the separated accounts and detailed in the accounting documentation.[313] Therefore, ComReg is satisfied that the changes to the reporting of staff noted in Eircom's statutory accounts has not impacted on the reporting of common type costs in the Separated Accounts.

5.522 Second, Analysys Mason disagreed with ComReg's approach of using the average of AFI data from two years to estimate common costs, taking the view that it is incorrect and lacks rigour. Instead according to Analysys Mason, ComReg should, having assessed the data, used whichever was the lower common cost. Analysys Mason also considered that storm events should have no impact on common costs and there should be no reason to take an average including higher common costs since the lower value should be considered the relevant figure.[314] Analysys Mason also argued that no attempt was made to check whether the common costs included in the NGA and NGN cost models is not being double counted with the common costs included in the ANM.[315]

5.523 ComReg notes that the common costs in the ANM are based on the level of common costs that are allocated to access network related network elements in Eircom's Separated Accounts, and, while ComReg accepts that storm events might not impact the overall level of common costs that are incurred by Eircom each year, they can impact the apportionment of those costs across network elements.

5.524 This is because many of the activities that are included in the common cost category are apportioned to network elements on the basis of the relative level of other

[311] Section 5.3.2, page 59 of the Analysys Mason Report.

[312] Full year results report to 30 June 2020, footnote 1, page 11. https://www.eir.ie/.content/pdf/IR/reports/2019_2020/eir_Q4_FY20_results_report.pdf

[313] "*There shall be consistency of treatment from period to period. Where there are material changes to the Regulatory Accounting Principles, the attribution Methods, or the Accounting Policies that have a material effect on the information reported in the markets within the Separated Accounts, the parts of the previous year's Accounts impacted by the changes shall be restated*." https://www.eir.ie/opencms/export/sites/default/.content/pdf/regulatoryinformation/primary_accounting_document_2020.pdf, Section 1.6, page 11.

[314] Section 5.3.3, page 59 of the Analysys Mason Report.

[315] Section 3.5.5, page 43 of the Analysys Mason Report.

attributed costs. For example, transport management activities are apportioned based on attributed transport related costs, personnel administration activities are apportioned based on attributed pay costs and general management activities are apportioned based on total attributed costs. Consequently, the network elements associated with access network maintenance will receive a larger share of the common cost allocation in those years that maintenance costs are higher due to storm events and vice versa. Therefore, ComReg is of the view that the Analysys Mason proposal to simply consider the lower common cost is not appropriate.

5.525 Furthermore, the fact that the common costs in the ANM are based on different network elements than those modelled in the NGA Cost Model and the NGN Core Model ensures that there is no risk of double counting of common costs in the different cost models.

5.526 Eircom also raised concerns that there was an incorrect allocation of cost recovery in the ANM for SLU and highlighted that: "*as the ANM incorrectly includes common corporate costs, together with other operating costs more broadly, it incorrectly only apportions 85% of those costs to SLU*".[316] ComReg accepts that this was an error and the allocation has been corrected to ensure that SLU and LLU both have a service-based weighting of one for the purposes of allocating common costs to services.

Repair and maintenance

5.527 A number of Respondents raised concerns with the modelling approach to Repair and Maintenance ('**R&M**') costs in the ANM. These included, among other issues, the level of efficiency adjustments applied in both the TD and BU approaches, the allocation of R&M costs between the copper and fibre services and the use of fault data to attribute costs to the different footprints. Each of the main issues is discussed in the following sections.

Efficiency adjustments for R&M costs

5.528 Eircom considered that the efficiency adjustments applied in the ANM were 'unfounded' / 'unrealistic', as the adjustments were made to a cost data set which already contains considerable efficiency improvements.[317] According to Eircom, a '*substantial minority*' of faults relate to the final drop and, because the BU approach only assumes that the feeder cables in E-side and D-side networks are replaced, the number of final drop faults would not be affected by the recently deployed cable assumptions that apply for feeder cables. Eircom also notes that "*it is generally the case that time worked per service restored is greatest for faults in the final drop. This is in part due to travel time and in part that a fault in a drop wire generally only affects*

[316] Paragraph 89 of Eircom's Non-Confidential Response dated 8 January 2021.
[317] Paragraphs 82, 83, and 85 of Eircom's Non-Confidential Response dated 8 January 2021.

one service."[318] Relying on work undertaken by its consultants BRG related to the modelling, Eircom questioned some elements of the modelling, e.g., cost trend being set to 0%.[319] Eircom suggested that efficiency adjustments should be based on detailed analysis confirming that they are possible through benchmarking or technical analysis of operating practices, and was of the view that the modelling contained unsubstantiated reductions in Opex leading to "*hyper-efficiencies and ultimately an under-recovery of properly incurred efficient costs*".

5.529 Eircom also argued that the rebasing of costs for the BU approach resulted in an "efficiency adjustment" of 40%, which "*is made to a cost data set (the AFI) which already contains considerable efficiency improvements in recent years. It is therefore unclear what further savings could be made. Indeed, the field force level after the proposed ComReg adjustment, would not be able meet the eir commitments on fault clearance, even at a much lower fault incidence rates*."[320] In response to Question 9, commenting on its revised Service Level Agreements ('**SLA**') and 'right-sizing' initiative Eircom also explained that the modelled reductions meant that Eircom could not meet its USO obligations or SLA targets for OAOs.[321] The improved SLAs consider a combination of Line Fault Indexes (LFIs) and fault clearance rates and Eircom noted that "*the sub-national areas where the target is challenging have a higher LFI and faults that require more effort to clear so Service Assurance headcount per working line must be higher than the national average…it is clear that the most challenges are in the NBP sub-national area and because this area does not map to particular exchanges it is not straightforward to understand how many of the Service Assurance field force are deployed in that area*".[322]

5.530 ComReg does not accept Eircom's argument that the rebasing of the R&M is unfounded or unrealistic. As Eircom has noted, ComReg has taken the preliminary view that Eircom's TD costs, as recorded in the two most recent HCAs, are representative of an efficient operator in respect of Eircom's legacy copper network, and these costs are the basis of the R&M costs in the TD approach that is used to inform the costing of PSTN-WLR and CG broadband services. The TD cost scenario is also the most relevant scenario in respect of Eircom's commitments on fault clearance given that its service level agreements and USO obligations apply to its legacy copper network. Therefore, the level of costs in the TD approach is consistent with these commitments as it is based on Eircom's incurred costs without further efficiency adjustments.

5.531 Furthermore, the rebasing of costs for the BU approach is not unsubstantiated as it is based on the level of efficient BU R&M costs that applied in the Revised CAM,

[318] Paragraph 84 of Eircom's Non-Confidential Response dated 8 January 2021.
[319] Paragraph 85 of Eircom's Non-Confidential Response dated 8 January 2021.
[320] Paragraph 83 of Eircom's Non-Confidential Response dated 8 January 2021.
[321] Paragraphs 151 and 152 of Eircom's Non-Confidential Response dated 8 January 2021.
[322] Paragraphs 153 and 154 of Eircom's Non-Confidential Response dated 8 January 2021.

which was derived by Eircom when it recalibrated the number of field force staff in each of the service assurance teams to a level that would be consistent with the requirement to clear the lower fault rates experienced on a recently deployed copper access network. Eircom provides no explanations why it now believes that this reduced field force level would not be able to meet its commitments on fault clearance given the significantly lower level of faults consistent with the BU approach. Indeed, when Eircom made a similar argument in its response to the 2017 Pricing Consultation (ComReg Consultation 17/26) it accepted that the modelled cost base could meet the revised SLAs.[323]

5.532 ComReg also notes that Eircom's comment that the USO targets are most challenging in the sub-national areas is consistent with the level of past investment being lower in these areas than in the areas where Eircom has been investing to support NGA deployment. ComReg has also observed a significant improvement in the fault data in exchange areas where the Rural FTTH has been recently deployed, indicating that even the legacy copper network can benefit from some of the network remediation activities undertaken in advance of FTTH deployment (e.g., pole replacement, tree trimming and securing overhead cables). The observed reductions in faults following the pole replacement undertaken as part of the FTTH deployment supports the assumption that the BU approach will have significantly lower R&M costs than those observed in Eircom's AFI's.

5.533 ComReg also notes that, in an appearance before the Joint Oireachtas Committee,[324] Eircom's CEO remarked that 2,500 poles had to be replaced due to Storm Ophelia in 2017. It is also the case that Eircom's HCAs for the FY 2017/18 included significant storm related Capex relating to the replacement of fully depreciated copper cables and poles that is consistent with these remarks. Indeed, the fact that most of the capital expenditure related to cables rather than poles, also supports the view that the high fault incidence associated with storm damage could be mitigated by pole replacement, securing cables and tree trimming activities as this will reduce the average cable failure rate leading to lower fault incidences, particularly in the rural areas of the network. Consequently, the rebasing of R&M costs in the BU approach should provide an appropriate cost basis for an HEO operating a recently deployed copper network in Ireland while meeting all relevant SLAs for network repair.

5.534 Nonetheless, ComReg accepts Eircom's point that a substantial minority of faults are cleared to the Final Drop, and that the ANM does not assume that Final Drops have been replaced with new copper leads, so that the BU approach should assume the same level of Final Drop related faults as the TD approach. However, the assumption

[323] See Annex 12: The 2018 Pricing Decision, paragraphs A 1.51 and A1.61 to A1.63.

[324] https://www.oireachtas.ie/ga/debates/debate/joint_committee_on_communications_climate_action_and_environment/2019-06-25/2/

on Final Drops is also carried over from the Revised CAM and ComReg remains of the view that the efficient level of R&M costs that underpinned the BU approach in the Revised CAM continues to be an appropriate basis for informing the efficient R&M costs in the ANM's BU approach.

5.535 Finally, Eircom noted in its response to Question 11 on LLU/SLU charges that the Opex cost in the BU Approach from the Revised CAM "*are based on a number of hypothetical and interlinked assumptions by ComReg of what a reasonable LFI representative of a new network would cost. eir proposes in this instance that the calculation of the Direct R&M costs should directly be used from the Revised CAM without further adjustment in the ANM*".[325]

5.536 However, given an assumed LFI, ComReg would expect overall fault volumes to vary because of changes to the number of active lines and, consequently, modelling a reduction in R&M costs in the BU Approach in response to a reduction in the number of active copper lines is not unreasonable. ComReg has nevertheless reflected in the modelling a level of fixed costs associated with the scaling of volumes as noted in paragraph 5.566.

R&M costs per line approach

5.537 A number of responses raised concerns with ComReg's proposed approach to allocate direct R&M costs on a per line basis.

5.538 Both Sky and Alto highlight concerns that the approach to allocating R&M costs is over-estimating the allocation of costs to FTTC with the result that FTTC services are effectively 'cross-subsidising' other services. ALTO noted that the proposal was for repair and maintenance costs to be allocated on a per line basis rather than per footprint and considered that this was inconsistent with common costs (allocated on a footprint basis). ALTO stated that there are 3/4 times the level of faults in the NBP IA compared to commercial footprints, which are used for recovery of a sizeable portion of rural fault occurrences. ALTO considered that the choices in both (repair and maintenance and common costs) caused higher FTTC prices and should be addressed urgently.[326]

5.539 Sky considered that there was no justification for ComReg's proposed approach to spread repair and maintenance costs evenly across all lines and by extension all technologies (CGA/NGA) and all markets (FACO/WLA/WCA). Sky considered that the bulk of repair and maintenance costs are caused by Eircom's activities outside the Urban Commercial Area footprint (i.e., PSTN-WLR in the NBP IA based on Sky's view of the USO faults data). Recovering those costs from other services would not be in keeping with cost causation principles or ComReg's obligations under the 2002

[325] Paragraph 192 of Eircom's Non-Confidential Response dated 8 January 2021.
[326] Section 4 of ALTO's Non-Confidential Response dated 8 January 2021.

Act. Sky also viewed the approach as contrary to the 2013 EC Recommendation as an efficient FTTC provider would never incur the scale of R&M costs associated with lines beyond the physical reach of the technology (even after HEO Line Fault Index adjustments).

5.540 Sky considered that ComReg's modelling should take account of the length of lines in cost allocation, and that the Consultation's proposals failed to do this contrary to the 2002 Act. Sky considered that no account was taken in the Consultation that direct costs for lines are higher in the NBP IA than in commercial areas, giving repair and maintenance costs as an example. According to Sky, this is supported by data to which ComReg has access (USO fault rate information) and which ComReg should have used.[327] Sky did not accept that ComReg does not have any detailed information on Repair and Maintenance for each of the three footprints, as ComReg had explained on 4 December 2020 in response to a query from Sky,[328] saying ComReg's response was "*patently untrue*" and suggesting that ComReg's failure to use information for the purpose of the modelling of repairs and maintenance / faults in the NBP IA, together with ComReg's assumptions, unsupported by data in Sky's view, on the commerciality of lines, was enabling a cross subsidy regime, contrary to ComReg's objectives under the 2002 Act. According to Sky, based on Analysys Mason's analysis of the USO line fault occurrence data, the Consultation proposals meant that the Urban Commercial Area footprint would recover 67% of repair and maintenance costs despite having less faults than the USO's areas 2 and 3, thereby driving up the cost of FTTC.

5.541 Contrary to Sky's belief, there is no detailed information available on R&M for each of the three footprints for the following reasons:

(a) Eircom's fault data, including USO fault data, is compiled at an exchange level and each exchange can, and does, include lines from more than one footprint.[329] As such, it is not possible to directly map Eircom's exchange fault data to the individual footprints in the ANM.

(b) The BU approach uses a scorched node approach which assigns premises to the nearest exchange. Therefore, the distribution of premises/active lines to exchanges in the BU approach is different to the distribution of premises/lines on Eircom's legacy network. Hence, the distribution of faults by exchange will also be different even before an allowance for the very different fault patterns that would be expected on the recently deployed copper access network is considered.

(c) The R&M costs in the BU approach are much lower than in the TD approach because the newer cables and upgraded CEI in the BU approach give rise to

[327] Paragraphs 50 and 51 of Sky's Non-Confidential Response dated 8 January 2021.
[328] Ibid footnote 96.
[329] For example, Eircom notes that the NBP does not map to any particular exchange, see paragraph 154 of Eircom's Non-Confidential Response dated 8 January 2021.

significantly fewer faults than is recorded on Eircom's legacy network. The reduction in faults is most marked in the rural areas corresponding to the NBP IA as Eircom has focused most investment since 2013 in the non-NBP IA areas where it has deployed NGA services.[330] Consequently, the pattern of faults that is observed on Eircom's legacy network will not be consistent with the pattern of faults that would be expected in the BU approach where, for example, the stabilised pole network and new copper cables will incur significantly lower maintenance costs as they are more resilient to storm damage thereby significantly reducing the level of faults on Eircom's aerial cable network.

5.542 Consequently, ComReg does not accept that the claim that it had no detailed information on R&M for each of the three footprints is "patently untrue" as the footprints are only modelled in the BU Scenario, for which no reliable fault data exists. Eircom, as it acknowledged in its response to the 2020 CEI Pricing Consultation, itself does not have information on the number of services that are active on its network in the NBP IA footprint,[331] and ComReg is satisfied that there is no fault data available by footprint for the hypothetical recently deployed network that underpins the BU scenario modelling in the ANM.

5.543 Nonetheless, despite this being the case and with the view to assuaging operators' concerns that its approach to allocating R&M costs is over-estimating the allocation of costs to FTTC with the result that FTTC services are effectively 'cross-subsidising' other services, ComReg undertook a further review of the available information relating to Eircom's R&M costs in an attempt to derive an alternative basis to the average per-line approach that was adopted in the consultation version of the model. The review also considered how the cost allocations might differ between the TD approach that is mainly used to calculate the costs associated with legacy services such as PSTN-WLR[332] and CG SABB, and the BU approach that is used to derive the LLU and SLU cost inputs into the NGA Cost Model to determine FTTC VUA prices.

5.544 Consequently, the fact that a TD costing approach has been used to determine the copper loop costs associated with legacy access services means that Eircom's incurred costs and recorded faults are relevant to the costing of the legacy copper loops used to provide PSTN-WLR or CG SABB services in a way that they are not for the LLU/SLU cost inputs into the NGA Cost Model, with the result that Eircom's

[330] ComReg's decision to revise the USO targets from a national target to a number of regional based targets was prompted by a recognition that the observed fault incidence rates were not consistent across the access network as customers in more remote areas were suffering a disproportionately higher fault incidence rate than customers in urban areas. Furthermore, ComReg has noted a significant improvement in the fault data corresponding to those parts of the access network where Eircom has recently deployed Rural FTTH.

[331] "*The footprint of the NBP covers, in full or in part, multiple eir exchange areas. eir's wholesale customers are billed on a per exchange basis. This means that there is no reliable method by which to determine the current number of active customers on the open eir network within an exchange area that overlaps with the NBP footprint*." Paragraph 258 of Eircom's Response to the 2020 CEI Pricing Consultation.

[332] Although, as noted in 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.

fault data at the exchange level can be used to inform the allocation of R&M costs to the copper loops used to provide CG SABB in the exchanges in the Regional WCA market.

5.545 Therefore, ComReg has revised the approach to the allocation of copper R&M costs in the TD approach to a three-step approach as follows:

(a) The national TD R&M costs are first allocated to 33 regional areas based on the relative number of staff that Eircom have assigned to each of the 33 regional teams with primary responsibility for fault remediation in each of these regions.

(b) The regionalised R&M costs are then attributed to each of the exchanges within the 33 regional areas based on the relative number of faults that Eircom recorded in each of those exchanges over the last two years (consistent with years used to derive the cost base of a typical year).

(c) The costs are then derived as a relative cost per line by exchange for input into the Opex module.

5.546 Revising the approach in this way enables an allocation of TD R&M costs to individual exchanges using regionalised staffing levels and fault data, and this has resulted in a significant increase in the relative proportion of R&M costs that are attributed to the exchanges in the Regional WCA Market with an offsetting decrease in the attribution of costs to the exchanges in the Urban WCA Market, leading to a consequent increase in the average Opex cost allocated to CG SABB lines. ComReg is also of the view that these results are more consistent with Eircom's statement in paragraph 153 of Eircom's submission (noted above in paragraph 5.529) that "*the sub-national areas… require more effort to clear so Service Assurance headcount per working line must be higher than the national average*" and also align with USO fault data referenced by both ALTO and Sky.

5.547 However, the BU approach, which is primarily intended to provide an analysis of costs at a footprint level, does not reflect either Eircom's incurred R&M costs or the precise exchange footprints and fault patterns evident on Eircom's legacy network. Each of the different footprints are defined with reference to the premises passed by different network deployments (FTTC/EVDSL in the Urban Commercial Area, Eircom's Rural FTTH extension network in the Rural Commercial Area and NBI's FTTH in the NB IA) and the associated R&M Costs are significantly lower than in the TD approach. Consequently, using the exchange-based fault data from Eircom's legacy network is less relevant for the BU approach and further analysis is required to derive an association between the legacy exchange-based data and the three footprints used to model costs in the BU approach.

5.548 The lower level of R&M costs in the BU approach is reflective of the lower headcount associated with the Service Assurance teams that Eircom provided to establish the level of BU R&M costs in the Revised CAM, and that continues to inform the level of

BU R&M costs in the ANM. Consequently, ComReg adopted a five-step approach to allocate the BU costs to footprints as follows:

(a) The proportion of BU R&M costs attributable to final drop faults is identified for attribution on a per-line basis, consistent with the assumption that every line has an equal propensity to incur a final drop fault.

(b) The residual BU R&M costs are then allocated to the 33 regional Service Assurance team areas based on the relative number of staff in each team in the BU team scenario.

(c) The regionalised R&M costs are then attributed to each of the exchanges within the 33 regional areas based on the relative faults in each of the exchanges within those areas as per recorded fault data at the exchange level, resulting in the attribution of BU R&M costs to every exchange within each of the 33 regional areas. This is based on the lower level of faults observed in FY2019, which ComReg considers is more consistent with the fault level of a recently deployed copper network.

(d) The combined (final drop related and residual) R&M costs by exchange are then allocated to footprints using Eircom's active lines data by footprint (active lines by exchange are mapped to each footprint in the Service Demand module, as described in the Service Demand section) and aggregated for each of the three footprints. Hence, a national cost per line can then be derived for each footprint that reflects the distribution of demand across the exchanges within the footprint.

(e) The cost per line for each footprint is then used to calculate a gradient that is applied as a weighting to attribute costs across the various footprints based on each year's line volumes in the BU approach. For example, the fact that a greater proportion of the Urban Commercial Area footprint demand is located in Dublin exchanges means that the cost per line for the Urban Commercial Area footprint will reflect the costs per line in Dublin exchanges more so than provincial exchanges. The gradient is included as Parameter 15 ('BU Copper R&M Weighting') in the Opex module.

5.549 The revised approach to allocating R&M costs in the BU approach means that each line in either the Rural Commercial Area or NBP IA footprints will receive 20% more BU R&M costs of a line in the Urban Commercial Area footprint. ComReg recognises that, while the analysis reflects the differences in average R&M costs between exchanges based on the available fault data and the assumed service assurance regional team sizes in the BU approach, it doesn't capture the differences that might arise within individual exchanges due to factors such as different line lengths and cable densities in the various footprints within those exchanges. The fact that the exchange footprints do not align between the BU and TD approaches implies that the BU analysis cannot provide a robust view of costs at the individual exchange level. However, ComReg considers that the revised approach does provide a

reasonable understanding of the differences in average R&M costs on aggregate between the Urban Commercial Area footprint and the Rural Commercial Area and NBP IA footprints despite the limitations associated with the available fault data as outlined in paragraph 5.541.

5.550 ComReg is of the view that the revised approach to allocating R&M costs in both the TD and BU approaches adequately addresses Respondents' concerns with the simple average per line approach that was adopted in the Consultation version of the model. The use of fault data in the TD approach better aligns the cost allocations with the actual fault incidence experienced on Eircom's legacy network and is consistent with Eircom's claim, noted in paragraph 5.529, that the average headcount per working line must be higher in the sub-national areas that include the NBP IA than for the national average.

5.551 The revised approach to allocating R&M costs in the BU approach also attributes more costs to rural areas, while recognising that the greatest reduction in fault incidences – associated with the replacement of poles and cables in the BU approach – is experienced in the more remote rural areas. The derived BU gradient is also consistent with the fact that the costs of final drops continue to be based on Eircom's legacy costs and that the relative proportion of faults across all footprints that are associated with final drops will be higher in the BU approach than the TD approach due to the reduction in the feeder cable faults that is assumed in the BU approach.

R&M cost allocation between copper and fibre

5.552 Sky's advisers Analysys Mason disagreed with the R&M cost allocations to fibre versus copper and argued that the approach taken was distortionary and loads more costs onto copper lines. In particular, Analysys Mason noted that "*copper-related Opex is 'uplifted' due to the fact it references the average of higher storm-related costs in 2018 and lower storm-related costs in 2019, whereas fibre-related costs are defined based only on the lower storm-related costs in 2019. This distorts the cost allocation, including the spreading of indirect costs, loading more costs on copper lines*".[333]

5.553 ComReg notes that average R&M cost from the two financial years are only used to inform the costs of PSTN-WLR[334] and CG broadband services, and the costs are intended to reflect the level of storm activity in a typical year. Consequently, ComReg does not consider that setting the costs with reference to the Financial Year 2019/20 that had an atypically low level of storm activity is appropriate for copper-based services such as PSTN-WLR.[335] Analysys Mason also argues that "*the modelled*

[333] Section 5.3.4, page 60 of the Analysys Mason Report.

[334] Although, as noted in paragraph 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.

[335] Eircom recorded almost 30% more line faults in the Financial Year 2017/18 than in the Financial Year 2018/19.

direct R&M Opex is substantially higher for a mature copper network than a mature fibre network" and highlights "*an implausible six-fold reduction in such costs between copper and fibre*". Analysys Mason further considers that, "*given that Eircom is only at the early stages of the FTTH process*", using the AFI data to identify relative copper and fibre maintenance costs may not be appropriate and "*that the scaling approach in the ANM model grossly distorts the Opex per line associated with copper and fibre deployments, which effectively distorts competition between copper NGA and fibre NGA technologies and services*".[336] Analysys Mason also raised concerns that the allocation of fibre R&M costs between FTTC and FTTH "*significantly overloads the fibre Opex onto FTTC fibre links*" with the result that leads to average copper and FTTH costs per active service that are implausible.[337]

5.554 In relation to these observations, ComReg has reviewed the attribution of fibre maintenance costs between FTTH and FTTC links in the AFI's. Eircom's cost accounting system uses different maintenance codes for overhead and underground fibre maintenance and the allocations in the AFI's recognise that the fibre link to the FTTC cabinet is provided using an underground E-Side fibre cable, while FTTH uses both underground E-Side fibre cables and a combination of overhead and underground D-Side fibre cables.

5.555 Based on this review, ComReg updated the allocation of fibre maintenance costs in the ANM to align with the specific allocations of fibre maintenance costs between FTTC and FTTH services that are evident in Eircom's AFI's – rather than using a per service based approach to allocate fibre maintenance costs between FTTC and FTTH, as was the case in the consultation version of the ANM. This has significantly reduced the allocation to the FTTC link and increased the allocation to FTTH, resulting in a more plausible average FTTH cost per active service. This re-attribution of fibre maintenance costs should also help alleviate the concern raised by Analysys Mason of cost oriented FTTC prices giving rise to a potential distortion in competition between fibre and copper-based services, although the fact that FTTH rental is not cost oriented means that eircom still have flexibility in setting FTTH prices.

5.556 As regards Analysys Mason's concern with the use of the Financial Year 2018/19 maintenance costs for fibre rather than an average including a year with significant storm events as is the case for copper, Eircom's fibre network is at the early stage of deployment and storm events do not impact the fibre maintenance costs to anything like the same extent as is evident with Eircom's legacy copper network. In fact, total fibre maintenance costs in the Financial Year 2018/19 was significantly higher than the previous year, which is consistent with the ongoing FTTH network expansion and the increased service volumes on the FTTH network. Indeed, fibre maintenance costs can be expected to increase each year in the HCAs as Eircom continues to

[336] Section 5.3.8, page 62 of the Analysys Mason Report.
[337] Sections 5.3.9 and 5.3.10, pages 63 to 64 of the Analysys Mason Report.

overlay copper with FTTH in urban areas and FTTH service volumes increase.

5.557 It is also the case that basing future fibre maintenance costs in the ANM on Eircom's incurred costs in the Separated Accounts would not be consistent with the demand for copper and fibre-based services in the ANM and NGA Cost Model, which is based on an anchor technology approach that assumes no overlay of FTTH in urban areas. Therefore, given that the ANM is not being used to derive cost oriented charges for FTTH rental services and that an anchor technology approach is now used when forecasting demand in the BU approach that calculates the LLU/SLU inputs for FTTC pricing, ComReg is of the view that continuing to use fibre maintenance costs from the Financial Year 2018/19 to inform the 2019 base year costs in the ANM and then forecasting these fibre maintenance costs to increase in line with growth in FTTH demand modelled in the ANM for the Rural Commercial Area footprint is appropriate.

5.558 Vodafone's advisers Frontier Economics noted that the overarching approach to allocating network shared costs between technologies is consistent with the approach in previous price controls. However, according to Frontier, the ANM should be populated with more up to date data based on Eircom's recently published 2020 Regulatory Financial Statements.[338] Analysys Mason also considered that the Opex source needs updating to include data to 2020 as the ANM cost inputs would otherwise be using data from 18 months ago. This would also reflect a more averaged level of storm related costs.[339]

5.559 ComReg notes that the fact that a BU approach is used to derive the R&M costs based on those pertaining to a recently deployed network means that the level of R&M costs in Eircom's HCAs is becoming less relevant to the setting of FTTC prices as Eircom overlay's FTTC with FTTH in the Urban Commercial Area footprint. There is already some evidence in the accounts of the direct R&M costs specific to FTTC equipment increasing and this could increase further should Eircom 'sweat' FTTC assets in advance of FTTH migration. Furthermore, the adoption of the FTTC anchor technology approach to determine service demand in the BU scenario in the ANM means that Eircom's latest demand data is less relevant to the costing of the LLU/SLU services used to inform FTTC prices. Consequently, ComReg does not consider it is appropriate to update the final ANM in respect of the R&M costs in the BU approach.

5.560 Eircom's costs and volumes are primarily relevant to the costing of PSTN-WLR and CG Broadband services in the TD approach. The key consideration is ensuring that the costs reflect those of a typical year, and these are not necessarily the level of costs observed in the most recent accounts. To this end, ComReg has reviewed the latest R&M cost information recorded in Eircom's FY 2019/20 accounts and

[338] Section 2.1.2, page 15 of the Frontier Economics Report dated 8 January 2021.
[339] Section 5.3.1, page 58 of the Analysys Mason Report.

concluded that the average of FY 2017/18 and FY 2018/19 R&M costs remain the most representative of a typical year.

5.561 Eircom noted that: "*Year on year, the operating costs eir faces to deal with particular weather conditions can therefore vary considerably*",[340] and argued that: "*To cater for this variance in storm opex eir submit that ComReg should average over a larger number of years from the AFI. Specifically, taking an average over 5 years from the AFI instead of two would appear to be more appropriate*."[341]

5.562 Eircom also considered that the approach taken to scale all R&M costs (declining over time in line with the reduction in active services on the copper network as modelled in the Service Demand module) was problematic, as Eircom considered that the assumption of repair and maintenance being a 100% variable cost based on changes to the number of active lines is incorrect.[342]

5.563 Eircom elaborated on this view in its response to Question 9, where it referenced three findings from the BRG Report:

> "*First, BRG question the scaling down of the Direct R&M Line cost by the ratio of the number of lines in the ANM to the number of lines in the Revised CAM. They note that the Revised CAM already incorporates significant efficiencies and there is likely to be a large fixed element to the staff and pay costs included in the Direct R&M Line opex. Second, BRG question the appropriateness of opex cost trends set to 0% and finally, they note that in the current modelling (with 0% cost trends), there is a large reduction in cost modelled over time as a result of having fewer active copper lines which is not offset by increases due to having more active FTTH lines. As a result, the levels of direct opex decline over time, with levels in 2022 being approximately €5 million lower than the starting 2019 levels.*"[343]

5.564 ComReg does not agree that Eircom's suggestion to use an average over a longer number of years is appropriate. Averaging the R&M costs in the AFI's going back to 2016 would ignore the fact that, in the intervening years, Eircom has replaced and remediated poles and aerial cable routes in advance of its Rural FTTH deployment and also, as noted in paragraph 5.533, had to replace poles and cables damaged by Storm Ophelia in 2017. Both of these developments should contribute to a more resilient copper cable network with fewer fault incidences than in previous years. Furthermore, as noted in paragraph 5.529, Eircom accepts that it has implemented "*considerable efficiency improvements in recent years*" in respect of its copper

[340] Paragraph 88 of Eircom's Non-Confidential Response dated 8 January 2021.
[341] Paragraphs 88 and 89 of Eircom's Non-Confidential Response dated 8 January 2021.
[342] Paragraph 87 of Eircom's Non-Confidential Response dated 8 January 2021.
[343] Paragraph 161 of Eircom's Non-Confidential Response dated 8 January 2021.

access network and the including AFI data from 2016 would dilute the impact of these efficiency adjustments.

5.565 ComReg also notes that the direct R&M costs in the BU approach that is used to cost the LLU/SLU inputs for FTTC prices is not strictly based on Eircom's recent accounts, as the costs were derived using a BU approach reflecting the significantly smaller service assurance staffing levels required by a HEO operating a recently deployed copper network.

5.566 In relation to Eircom's concerns in respect to the scaling of R&M costs as copper volumes decline and FTTH volumes increase, ComReg accepts that treating R&M costs as 100% variable in respect to changes in copper and fibre service volumes may be an over-simplification, even when taking a long run view of costs. In particular, the fact that the access network covers all parts of the country means that a minimum number of service assurance staff is required to be available across all regions to ensure a reasonably rapid response time to clear access network faults. Eircom argues that it is not possible to stand down teams in certain geographic areas as the SLA and USO targets need to be met until fibre is rolled out in the NBP IA or copper is switched off. However, while there may be a fixed element to R&M costs, ComReg still considers that a significant element of the costs would be scalable, and it still should be possible to reduce the service assurance team sizes should there be a significant decline in the overall level of active services.

5.567 Therefore, rather than treating all the R&M costs as "unavoidable" as per Eircom's suggestion,[344] ComReg has derived a fixed cost by assuming that each of the 33 regional service assurance teams that are involved in fault repair has a minimum of 3 staff members at all times. ComReg is of the view that a minimum of three FTEs per team should be sufficient to comply with health and safety requirements, while providing cover for annual leave, sick leave and attendance at training courses.[345]

5.568 ComReg also notes that the BRG Report argues that assuming a 0% trend for direct Opex costs over the modelling period seems unreasonable and they "*would expect to see some inflation built into the generic cost trend to take into account wage increases, and the other cost trends should be based on best-estimate forecasts (potentially derived from historical trends in these costs)*". However, ComReg is of the view that the average wages across Eircom's service assurance teams are unlikely to increase in line with general wage inflation as there is recent evidence of older Eircom staff, on the higher salary increments, exiting the company and being replaced by staff on lower salary increments. Consequently, ComReg remains of the view that the 0% price trend is reasonable, at least for the forthcoming price control period. Furthermore, the increase in the average cost of fibre maintenance, noted in

[344] Paragraphs 153 to 155 of Eircom's Non-Confidential Response dated 8 January 2021.
[345] Further information on the revised approach to R&M scaling and how it is applied in the Opex Module of the ANM can be found in the Section 5 of the Specification Document.

paragraph 5.555, will mean that the overall decline in R&M costs as the copper line base declines and active FTTH lines increase will not be as significant as the level of decline in the Consultation version of the ANM that was highlighted in the BRG report.

Other Repair cost issues

5.569 Sky considered that there was a material error relating to the over indexing of SLU's share of per line Opex at 85%, which Sky considered to be arbitrary rather than following a cost causation basis. Sky indicated that the allocation should at least be reduced to 67 – 68% (or 53% if best practice was applied) based on modelling undertaken by its consultants Analysys Mason (Section 5.5.4 of its report), and if done would reduce the cost of FTTC by €1.[346]

5.570 In addition, the Analysys Mason Report notes that "*ComReg has not assumed that PSTN-WLR, SABB or ISDN-BRA need more than one line's worth of opex because of additional ports, PSTN equipment, line-cards, etc. At the same time, line sharing is assumed to have zero opex. There does not seem to have been an attempt to allocate opex on a cost-causation basis*".[347]

5.571 However, this is not the case. The purpose of the ANM is to calculate the costs of the access network in so far as it is used to support different services, and all of the copper-based services listed by Analysys Mason involve the use of copper access network elements (used by either LLU or SLU). The Opex associated with the ports for these services is not part of the cost of providing these network elements, as they are not part of the copper access network and are located on the other side of the MDF to the termination blocks for the copper cables in the local exchange. Consequently, the Opex associated with ports are modelled separately to the cost of LLU and SLU.

5.572 Eircom uses separate maintenance codes for service specific ports and, in the case of PSTN and ISDN, these costs are factored into the service specific cost elements in the ANM, e.g., the MSAN port for PSTN and the ISDN-BRA port for ISDN-BRA. No additional costs are included in the ANM for SABB because the port related costs are not modelled in the ANM as they are already factored into the NGA Cost Model for NGA services and the NGN Core Model for CG SABB. In the case of line share, no additional Opex is assumed as the line share charge is only intended to recover the additional copper related costs that arise when a broadband service is provided over a copper line that is also used for a narrowband service, and where all the copper maintenance has already been recovered by the narrowband service. Therefore, ComReg does not accept Analysys Mason's assertion that there has been

[346] Paragraphs 124 and 125 of Sky's Non-Confidential Response dated 8 January 2021.
[347] Section 5.5.4, page 70 of the Analysys Mason Report.

no attempt to allocate Opex on a cost-causation basis.

5.573 As to the assertion that there is a material error in the ANM in relation to SLU's share of per line operating costs, ComReg notes that the alternative approach proposed by Analysys Mason to base the apportionment on relative E-Side, D-Side and final drop capex fails to allow for the fact that final drop costs for copper-based services are not capitalised in the ANM. As a result, the SLU related capex will be understated because the SLU service uses both D-side and final drop network elements, whereas LLU is the equivalent of an SLU service plus the use of the E-side feeder cable.

5.574 Furthermore, as noted in paragraph 5.528, a substantial minority of faults are associated with the final drops and the average cost of repairing these faults tends to be higher due to travel time and the fact that the repair effort on a final drop generally only affects one service while the repair effort on a feeder cable can address multiple faults in one visit. Indeed, it is also the case that faults incidences on E-Side and D-Side feeder cables are modelled to be lower in the BU approach due to the assumption that all feeder cables are recently deployed, whereas all final drops are not replaced, and the level of faults will not be affected to the same extent. As a result, the ratio of final drop faults to feeder cable faults is higher in the BU approach than the ratio that Eircom has observed when using the fault data recorded on its legacy network.

5.575 Consequently, ComReg is of the view that the alternative calculations proposed by Analysys Mason significantly under-estimate the proportion of per-line Opex that is relevant to the SLU network elements. However, ComReg has updated the calculations of the SLU weighting based on the latest available information and, as a result, the estimate for SLU's share of per-line Opex has been revised to be 81.4%.

5.576 Eircom also argued that because the asset base costing for the PAM and DAM Modules are maintained at primarily TD levels the level of Opex should also be maintained at the TD level, even when the BU approach is chosen. However, the BU approach in the ANM assumes that all duct and pole remediation required to make the network NGA ready has been undertaken and, as this involves the replacement or repair of CEI that is likely to involve the highest element of maintenance, ComReg remains of the view that it is appropriate that the level of maintenance costs should be lower in the BU approach than in the TD approach.

Provisioning costs

5.577 Sky considered that there is a double count with regards to provisioning costs, in that FTTC pays for the provisioning costs for its own lines and also subsidises provision costs related to PSTN-WLR lines, and recommended that this be removed from FTTC prices.[348] This reflects a point made in the Analysys Mason Report, which

[348] Paragraph 123 of Sky's Non-Confidential Response dated 8 January 2021.

noted that all the provisioning Opex is allocated to copper services, and none to fibre services. Analysys Mason also highlighted that the Consultation's Specification Document explains that most of these provisioning costs are related to PSTN-WLR services, as in particular FTTC and FTTH provisioning is capitalised. Consequently, Analysys Mason concluded that all these provisioning costs should be allocated to PSTN as "*Not doing so essentially leads to FTTC lines paying both for their own (capitalised) provisioning costs as well as subsiding the provisioning costs of PSTN-WLR lines (by around EUR1 million)*".[349]

5.578 ComReg note that the provisioning Opex modelled in the ANM refers to the costs associated with providing the final drop, which is the copper service lead from the final distribution point on the main cable network to the customer premises. The Final Drop network element is included in the ANM and is it is an essential component of the SLU and LLU services that are used by all copper-based services. The note in the Specification Document referred to by Analysys Mason recognises that most of these provisioning costs are attributed to PSTN-WLR services as the majority of FTTC orders have been for a POTS based service and, to date, Eircom's HCAs allocate the POTS related components, including all copper related costs such as the final drop, to the Narrowband statement in the accounts.

5.579 However, even when the FTTC service is provided on a standalone basis some allowance needs to be made for the fact that the provisioning costs associated with installing the final drop are captured in the ANM and not in the NGA Cost model. In fact, the provisioning costs that are attributed to FTTC in the NGA Cost model only refer to the additional costs of 'jumpering' at the cabinet and the MDF that is required when an FTTC service is first provided. Therefore, ComReg is satisfied that there is no double charging of provisioning costs to FTTC services and the current treatment of allocating all provisioning Opex modelled in the ANM to all copper-based services is correct.

5.580 Eircom also raised a concern with the modelling of provisioning costs, particularly with the assumption in the ANM that provisioning costs decline directly with the number of new PSTN-WLR connections which are modelled to have a very rapid decline to zero by 2025. Eircom argues that "*the bulk of the provisioning costs are driven by service moves and re-connections which is a form of activity driven by the size of the fixed telephony base and not solely by the demand for new services*".[350]

5.581 With regards to this concern, ComReg notes that it would still expect the copper related provisioning costs to decline if the overall copper telephony base declined. However, as the modelled decline in the copper base is lower under the FTTC anchor technology approach, which is now adopted in the BU approach used to model the costs of LLU/SLU inputs and assumes a copper network operating in perpetuity in

[349] Section 5.3.11, pages 64 to 65 of the Analysys Mason Report.
[350] Paragraph 95 of Eircom's Non-Confidential Response dated 8 January 2021.

the Urban Commercial Area footprint, the trend in the provisioning Opex in the BU approach has been amended to be consistent with the changes in the modelled copper demand over time.

5.7.3 Conclusion

5.582 Having considered the Respondents' submissions, ComReg remains of the view that the Opex module, as consulted on in Section 5.7 of the Consultation, is a reasonable basis for determining the Opex costs of copper and fibre-based access services, subject to the changes identified above addressing Respondents' submissions, including in particular the following:

(a) The modelling of common costs has been revised to recognise the extent that common costs might be scalable and to ensure that all costs that might be incremental to services sold in the NBP IA are attributed to those services, thereby avoiding the risk of cross subsidisation between the commercial footprints and the NBP IA footprint identified by some Respondents;

(b) The attribution of R&M costs has been revised in both the TD and BU scenarios by making use of information on relative R&M team sizes by region and relevant fault data. This has resulted in a greater attribution of direct R&M costs from urban exchanges to rural exchanges in the TD scenario and from the Urban Commercial Area footprint to the rural (Rural Commercial Area and NBP IA) footprints in the BU scenario;

(c) The attribution of fibre related maintenance between FTTC and FTTH services has been revised to better align with the allocations evident in the AFI's based on Eircom's HCAs. This has resulted in an increased allocation to FTTH and a lower allocation to FTTC;

(d) The modelling of future provisioning costs has been revised to track the relative number of active lines each year rather than trend towards zero as previously modelled. This better reflects the anchor technology approach to modelling service demand that is adopted in the BU Scenario.

(e) The modelling of common costs for SLU services has been revised so as to recover the same amount of common costs as LLU services to be consistent with the per service approach to common cost recovery.

5.583 The Opex module presented in the Consultation has been finalised on this basis and the amendments made are reflected in the prices set out in Section 7.

5.8 Capex module

5.8.1 Design of the Capex module

5.584 The Capex module calculates the costs of copper- and fibre-based access services for the modelling period covering the financial years 1 July 2018 to 30 June 2030.[351] The Capex module makes use of the data outputs from the other modules to derive the costs of the services under review. The service covered are as follows:

Services covered

5.585 Copper-based access services include:

(a) PSTN-WLR[352];

(b) LLU, which is mainly used as an input by the NGA Cost Model[353];

(c) SLU, which is mainly used as an input by the NGA Cost Model;

(d) CG SABB; and

(e) Line Share.

5.586 Fibre services include:

(a) Dark Fibre;

(b) FTTH (the ANM only calculates a cost per FTTH connection); and

(c) Wholesale Symmetrical Ethernet Access ('**WSEA**'). The ANM provides the WSEA access network cost outputs.

5.587 In the Consultation ComReg explained that the capital value of network assets in the Capex module can be calculated using a BU or a TD approach. The BU approach calculates service costs using the network asset counts estimated in the Geospatial model by Eircom exchange area and in three geographical footprints: a national footprint, Urban Commercial Area and Commercial Areas. This allows the BU approach in the ANM to calculate the standalone costs for the Urban Commercial Area and the 'All-footprint' scenarios, as well as the incremental costs for the Rural Commercial Area and NBP IA footprints. The BU approach was used in the Urban Commercial Area footprint to calculate the copper loop costs of the LLU and SLU, as well as the cost inputs (LLU, SLU and NGA Fibre Link) from the ANM into the NGA

[351] Further information on the Capex module modelling is contained in Section 8 of the Specification Document.
[352] Although, as noted in paragraph 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.
[353] As per the 2018 Pricing Decision.

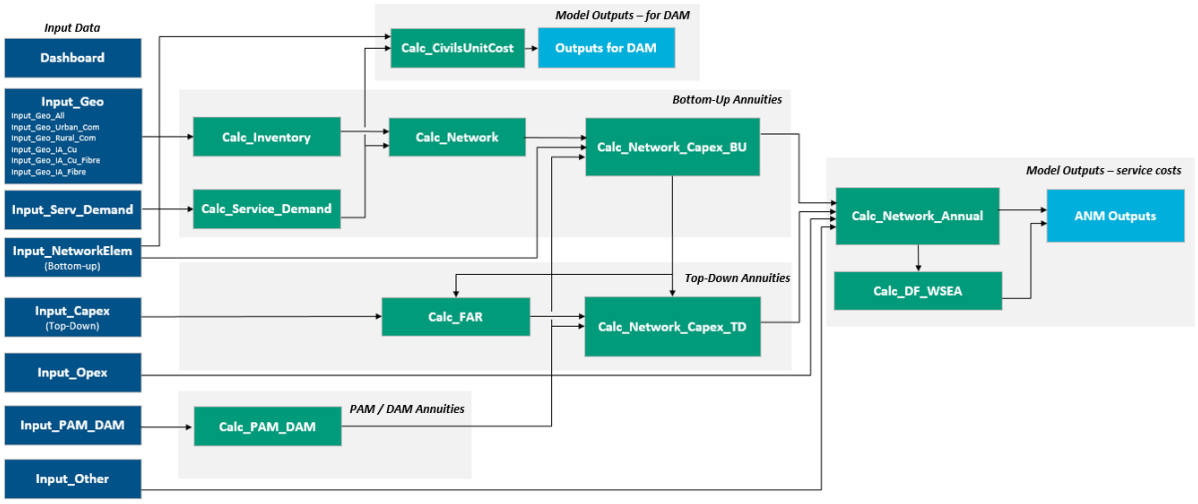
Cost Model for the purpose of calculating the costs of FTTC based services. The BU approach was also used to cost fibre-based services and the active voice equipment that supports PSTN-WLR and other POTS based services.

5.588 As set out in the Consultation, the TD approach in the Capex module uses Eircom's actual historic capex costs as the basis to estimate the network costs of Eircom's legacy access network, including those assets, such as ducts and poles, that could be reused to support an NGA network. The TD approach was used in the All-footprint scenario to calculate the copper loop costs for the PSTN-WLR and CG broadband services.

Interaction with other ANM modules

5.589 As described in the Consultation, to calculate the costs of these services the Capex module used inputs from the Geospatial module, Service Demand module, Opex module, and the PAM and DAM modules. Figure 20 provides an overview of the Capex module.

Figure 20 Overview of Capex module



Source: Cartesian

5.590 The data inputs provided by the ANM modules into the Capex module are:

(a) Geospatial module: provides the network asset inventory disaggregated by asset type and by exchange area by footprint;

(b) Service Demand module: provides the total count of copper and fibre service volumes by year, by exchange area and by footprint, based on the BU and TD approaches. It provides premises coverage data for FTTH rollout and copper switch-off data as well as FTTH connection volumes, split by standard and non-standard, by year and footprint;

(c) Opex module: provides costs per line for copper and fibre-based services, by year, by exchange area by footprint, based on a BU and TD approaches further disaggregated between common costs and other Opex (non-common) costs, and including service specific Opex data; and

(d) PAM/DAM modules: provides CEI (poles and ducts) cost annuities (net of revenues derived from CEI access by NBI) by year, by exchange, by footprint.

Geographical cost differentiation

5.591 The Capex module calculates service costs by Eircom exchange area and in the three geographical footprints, Urban Commercial Area, Rural Commercial Area and NBP IA. As mentioned earlier, the ANM had 1,148 exchanges.[354] For the purpose of the draft Decision in the Consultation, each exchange area was categorised in the Capex module as being part of:

(a) The Modified Larger Exchange Areas ('Modified LEA') (237 out of 1,148 ANM exchanges) or Outside of the Modified LEA; or

(b) The Regional Low-Level FACO Market (699 exchanges out of 1,148 ANM exchanges) as defined in in the 2020 FACO Consultation (which that Consultation proposes to continue to regulate) or the 'Urban Low-Level FACO Markets' which the 2020 FACO Consultation proposes to deregulate; and

(c) The Urban WCA Market or the Regional WCA Market (1,011 out of 1,148 ANM exchanges), as determined by the 2018 WLA/WCA Market Review Decision. In the Consultation, ComReg noted that the forthcoming WCA Market Mid-Term Assessment might move some exchanges subject to regulation in the Regional WCA Market into the Urban WCA Market and so those exchanges might no longer be subject to regulation. ComReg noted in the Consultation that in making its final decision on the ANM ComReg would use the most up to date definition of the Regional WCA Market.[355]

5.592 In terms of geographical footprints, as noted in the Consultation, the Capex module calculates costs for each of the four geographical footprints. This allowed, for example, the ANM to derive the costs of PSTN-WLR with reference to the exchanges proposed to be subject to continued regulation, the Regional Low-Level FACO Market (as defined in the 2020 FACO Consultation), or to derive the NGA related cost inputs (e.g. LLU, SLU, NGA cost per link) with reference to all the exchanges in the Urban Commercial Area footprint (as this is the only footprint where FTTC is presently available or forecast to be available in the modelling undertaken).

[354] Please see footnote 85.
[355] Paragraph 5.166 of the Consultation.

Network costing

5.593 In the Consultation ComReg outlined that the Capex module uses Network Elements ('**NE**') as 'building blocks' to derive the costs associated with services. For example, SLU use NEs related to the D-Side network (e.g. aerial cable) while LLU use NEs related to both the E-side and D-Side.

5.594 For the capital costs of the NEs underpinning each of the access services, the Capex module uses both TD and BU, with each service generally modelled to reflect a combination of both approaches. Capital costs included the depreciation charge based on the relevant depreciation method and a reasonable return on capital employed based on the regulated WACC of 5.61%.[356]

5.595 For PSTN-WLR, all non-CEI NEs were valued based on the TD approach, with the exception of the active equipment for the voice service, which was valued using a BU-LRAIC+ approach, assuming that the Modern Equivalent Asset ('**MEA**') for PSTN voice is a Multi-Service Access Node ('**MSAN**') port. The key modelling parameters for this equipment, such as average port costs, utilisation factors and asset life were retained from the Revised CAM. For all other services, non-CEI NEs were valued based on a BU approach. With regards to CEI NEs (poles and ducts), the TD approach is used to value assets which can be reused to deploy NGA services, while BU costs were used to calculate the costs of assets which cannot be reused and hence require replacement at current costs. Table 10 provides a summary of the valuation approaches by NE.

[356] This has now been updated to 5.56% following ComReg IN 21/68, see paragraph 3.40.

Table 10 Capex Valuation approaches by Network Element

Category	Network Elements	Bottom-Up	Top-Down
Copper	- Street Cabinets - Cables - Joints, DPs - Terminations - MDF costs	✓	✓
FTTC	- Fibre cables - Fibre Joints - Terminations	✓	-
FTTH	- Cables - Joints, DPs - Terminations - Splitters	✓	-
FTTH Connections	- FTTH Connections	✓	-
Leased Lines	- Cables - Joints	✓	-
Exchange costs (apply to all services)	- Active equipment (Port, ODF, NTU, etc.) - Manhole - MDF costs (copper only)	✓	-
CEI Costs (applies to all services)	- Trenches - Ducts - Chambers - Poles - LA Tax	PAM/DAM	

Source: Cartesian

5.596 The TD approach uses Eircom's historical costs based on data provided by Eircom under Section 13D(1) of the Act. Eircom provided details of its Fixed Asset Register ('**FAR**') for the financial year ending 30 June 2018, which included Gross Book Value, Accumulated Depreciation (calculated based on a straight-line depreciation method over the relevant regulatory asset lives), and Net Book Value by asset class and the capital 'settlements'[357] to the FAR with respect to the financial year ending 30 June 2019. From this data, ComReg identified the asset classes relevant to the access network and the services within the scope of the ANM.

5.597 In the Consultation ComReg noted that Eircom did not provide a capital investment forecast for its copper access network. In the absence of this information, ComReg modelled copper-related capital investment in the period 2020-30 by assuming that Eircom's Capex in this period is 50% of the Capex recorded in the financial year 2019 but only in those exchanges where copper was forecast to remain active. ComReg's choice of the 50% rate was guided by ComReg's consideration that over the 10-year period covered by the ANM, it was unlikely that copper investment would continue at current levels based on the expectation of customers migrating to the fibre network leading to Eircom's eventual copper switch-off so that the focus of new build is likely

[357] The term 'settlement' refers to Capex that is considered work in progress until it is assigned to an asset class in the FAR, and at which point a depreciation schedule is applied.

to be fibre-based. ComReg was also of the view that copper decline is also likely to occur more quickly in commercial areas.

5.598 Likewise, ComReg considered that Eircom would be required to incur some copper Capex as a result of having a significant share of its customer base tied to its copper network and as a result of the service performance obligations under the Universal Service Obligation.[358] For these reasons, without more details available as regards Eircom's copper plans, ComReg was of the preliminary view that 50% was a reasonable placeholder figure.[359] However, ComReg noted that it would be in a position to monitor the capital expenditure on copper related assets in those exchanges in the Regional Low-Level FACO Market as defined in the 2020 FACO Consultation through the Additional Financial Information provided by Eircom as part of its cost accounting obligations, which should allow the reasonableness of the investment assumptions to be assessed on an ongoing basis.

5.599 The BU approach values, at current costs, a hypothetical efficient network providing 100% coverage. As explained in the Consultation, in the Capex module the network asset inventory calculated by the Geospatial module is overlaid onto the data from the Service Demand module on copper and fibre service availability by exchange and by footprint. For example, for any given year, the Capex module calculated the BU asset count for copper NEs (e.g. aerial copper cable, etc.) but only in those exchanges which were modelled to have active copper services. The calculated asset count was valued at current costs based on the unit capex of each asset in that year.

5.600 In the absence of data on unit Capex costs for copper-related assets, including expected price trends from Eircom,[360] ComReg used the unit Capex data contained in the Revised CAM but not the price trends, which in general reflected positive price trends for copper assets. ComReg considered that this was a reasonable assumption given that demand for these assets will be declining as a result of customer migration to fibre services. With regards to FTTH-specific assets Eircom provided current prices, and these were used to value the BU inventory.

5.601 For CEI NEs the cost annuities from the PAM and DAM modules reflect, as described above, a combination of TD costs for Reusable Assets and BU for Non-reusable Assets, with the exact combination in any given year being determined by the timing and reach of the FTTH deployment. ComReg considered that the FTTC inputs (LLU

[358] ComReg Decision D05/16: "Universal Service Requirements Provision of access at a fixed location (AFL USO)".

[359] For example, based on the Geospatial analysis the relative share of copper cable in the NBP IA is approximately 50%, and it would be expected that most of the future investment would occur in these areas, as a result of the USO obligations.

[360] ComReg notes that Eircom has signalled plans to replace the legacy PSTN line cards with a modern equivalent MSAN port. However, Eircom has not provided the associated costing and as result ComReg has assumed this to be the same as the PSTN line card, as included in the Revised CAM.

and SLU) into the NGA Cost Model should be reflective of a network which is 100% NGA-ready, irrespective of the phased nature of the actual FTTH deployment in the Urban Commercial Area footprint. ComReg's modelling of Eircom's planned FTTH deployment in the Urban Commercial Area footprint indicated that the CEI network in this footprint will only become 100% NGA-ready by 2024[361] (based on a 5-year rollout plan).

5.602 Given this, as noted in the Consultation, for the purpose of calculating the FTTC inputs, ComReg implemented a 'CEI uplift' to the CEI annuities derived in the PAM and DAM modules for the years prior to 2024 to allow the CEI annuities in those years to be consistent with the model year 2024 when the CEI network was modelled to become 100% NGA-ready, i.e. by 2024 all CEI can be reused for deploying an NGA network. As a result, the uplifts applied to the capital costs of duct in the price control period reduced from 8% (in model year starting 1 July 2020) to 1% (in model year starting 1 July 2022), while the uplifts applied to the capital costs of poles reduced from 52% to 11% for the same periods.[362] It is also the case that the majority of CEI in the Urban Commercial Area was duct related.

Poles and ducts

5.603 In the Consultation ComReg noted that the 2020 CEI Pricing Consultation calculated and proposed access charges applicable to Generic Access CEI users and NBI's MIP for pole and duct access. Given the significant use of the Eircom pole and duct network expected from NBI, ComReg modelled the take-up of poles and ducts by NBI in both in the NBP IA, where it is expected that it will eventually be the only user of these assets, and in Commercial Areas, where it will share use with Eircom (for transit purposes). Based on this, ComReg modelled in the PAM and DAM the revenues that Eircom is expected to derive from the proposed wholesale CEI access charges to NBI. ComReg calculated the CEI annuities net of these CEI revenues as the quantum of costs to be recovered in the Capex module over the remaining copper and fibre services.

Service unit costs

5.604 The Capex module calculates the service unit costs based on the capital costs of the NEs and also the Opex associated with each service and the service volumes

[361] 2024 refers to the model year, which covers the period from 1 July 2023 to 30 June 2024.

[362] Applying an uplift to the TD CEI valuations in the ANM is intended to serve the same purpose as the 92% / 8% TD / BU and 95% / 5% TD / BU valuations that were applied respectively to the valuation of poles and ducts in the Revised CAM. Further information on the calculation of CEI annuities in the ANM can be found in paragraphs 6.24 to 6.29.

associated with each NE.[363] This was done for the relevant exchange and footprint and for the selected year, except for FTTC.

5.605 For the FTTC inputs, ComReg considered that the unit cost for some associated NEs in the Urban Commercial Area footprint should recognise the use of those NEs by services in the Rural Commercial Area footprint. As NE's in the Urban Commercial Area footprint (typically E-side and to a lesser extent D-side) are used to serve customers further out in the Rural Commercial Area footprint (e.g. Rural Commercial Area cable routes overlap with those of the Urban Commercial Area footprint), ComReg estimated from the Geospatial module the total cable route sharing between the two commercial footprints and applied this as a weighting factor to the services volumes in the Rural Commercial Area footprint to derive the combined volumes for the FTTC inputs.

5.606 ComReg was of the preliminary view that costing approaches adopted in the Capex module to calculate the costs of copper- and fibre-based access services were appropriate; that is to say the BU approach using the network asset counts estimated in the Geospatial model by Eircom exchange area and geographical footprint and the TD approach using Eircom's actual historic capex costs by exchange area as the basis to estimate the network costs of Eircom's legacy access network, including those assets, such as ducts and poles, that can be reused to support an NGA network.

5.8.2 Respondents' views and ComReg's assessment

5.607 Three Respondents (Eircom, BT and Vodafone) provided responses Question 7 on the costing approaches adopted in the Capex module. Sky and ALTO did not reply directly to Question 7 but ComReg has considered Sky and ALTO's general response in its assessment of responses to Question 7. Sky's advisers Analysys Mason have however provided specific comments to this question in their report.

5.608 In summary, Eircom noted that the ANM indicated that a significant proportion of copper related capex will not be depreciated at the time of copper switch-off, and that without significant adjustments to "properly account" for copper switch-off the outcomes of the ANM would be erroneous. Eircom concluded[364] that the cost approaches adopted in the Capex module were not appropriate.[365] BT agreed with the proposed approach but noted concerns in relation to the ANM assumption for future copper cable capex, and that the data used by ComReg was not up to date. Vodafone disagreed with the approach of allocating CEI capex costs between FTTH

[363] Some services include in addition service-specific costs, such as the Network Termination Unit for leased lines or the Digital Subscriber Line port for current generation broadband. For brevity, these are not described in this document, but details can be found in Section 8 of the Specification Document prepared by Cartesian.

[364] Paragraph 116 of Eircom's Non-Confidential Response dated 8 January 2021.

[365] ComReg's assessment of Eircom's concerns on asset stranding is considered is Section 5.3.

and FTTC and considered that the capex acceleration identified by ComReg to make the CEI network NGA-ready should be allocated in full to FTTH. Vodafone was concerned that a disproportionate share of E-Side CEI capex was being attributed to LLU/SLU.[366]

5.609 Analysys Mason for Sky raised concerns with regards to the modelling of the E-Side and D-Side copper costs, which underpin the costs of LLU and SLU, which it considered "fundamentally flawed". Analysys Mason also considered that the allocation of CEI NGA-ready capex to FTTC services was unduly "subsidising" FTTH. Analysys Mason also raised concerns with regards the modelling of road crossings and cable dimensioning.

5.610 ComReg's consideration of the issues raised by Respondents and ComReg's final position are set out below under the relevant subheadings.

WACC change implementation

5.611 Eircom outlined concerns with regards to the implementation of the WACC change from 8.18% to 5.61% (following ComReg's 2020 WACC Decision). Eircom's advisers BRG pointed to what they claimed was a mathematical error in the implementation of the WACC change to determine the level of tilted annuities and economic depreciation in both the DAM and PAM modules and in the NGA Cost Model.[367] For BRG, ComReg had failed to recognise that the past amortisation of capital was based on a higher WACC of 8.18% and the consequence that the higher NBV applied for the purpose of applying the new lower WACC of 5.61% to derive future capital annuities.

5.612 ComReg recognises that, in principle, the approach taken to update the WACC in the Consultation version of the model could lead to some under recovery of costs, particularly when there has been meaningful demand for the services, as is the case with the LLU/SLU inputs used in the NGA Cost Model to inform FTTC prices in the 2018 Pricing Decision. Therefore, ComReg has updated the Capex annuities from 2020 in both the PAM and DAM cost models, by re-setting the NBV in 2019 on the basis of an amortisation of capital (depreciation) from 2014 based on the previous regulated WACC of 8.18%. ComReg does not accept that it would be appropriate to do so for subsequent years, and thereafter therefore, ComReg has applied the applicable WACC rate of 5.56% in keeping with the 2020 WACC Decision.

Copper cable capex

5.613 In the ANM TD approach Eircom disagreed with the assumption of a 50% reduction in copper Capex between 2020 and 2030 and considered that a 10% reduction was

[366] Pages 7 and 8 of Vodafone's Non-Confidential Response dated 8 January 2021.
[367] Paragraphs 27 to 33 of the BRG Report dated 8 January 2021.

more appropriate.[368] BT noted that it believed that "*there is no intention of Eircom deploying new network copper other than for jumpers and drop wires*"[369] and that ComReg's 50% estimate appeared too high.

5.614 For Eircom's advisers BRG, ComReg's assumption was not backed by any evidence and was inappropriate as it would lead to an understatement of costs for PSTN-WLR and CG SABB. 2020 would likely be the same as 2019 in terms of the market and the timing of copper switch-off and it could be assumed that any reduction in investment would be minimal; it was common for delays to emerge in switching off a service. For BRG it was sufficient that the model already factored the switch-off into the Capex investments due to Capex being set to zero once switch-off occurred and no further adjustment was needed.[370]

5.615 The assumption of the 50% reduction in copper cable Capex was made by ComReg in the absence, as noted in the Consultation,[371] of an Eircom forecast for copper cable Capex. According to Eircom, the "*reduction in the investment in the copper network will be minimal*",[372] underground copper cable has shown a gradual decline in recent years due to new housing developments being served with fibre cable although overhead copper cables "*have held up to the extent that, over recent years, overhead investments run at double the underground rate*".[373] According to Eircom, recent overhead copper cable Capex is made largely to ensure the network performs in line with regional service assurance targets. Consequently, Eircom considers that a "*10% reduction is more likely to represent the actual movement of such costs over time*".[374]

5.616 Having reviewed the capital expenditure information provided by Eircom as part of its AFI submissions, ComReg notes that Eircom's access copper cable capital expenditure reduced by 14.5% between FY2018/19 and FY2019/20 and by 25.3% in the prior year, hence in these last two years copper capital expenditure (underground and overhead) reduced by over 35%. Given this, ComReg has updated the copper capital expenditure for FY 2019/20.

5.617 For subsequent years, ComReg expects that the combination of the recent investments to respond to the USO network performance regional targets and the ongoing refresh of the pole network to make it NGA-ready should reduce significantly the levels of copper Capex, which Eircom acknowledges is largely incurred to ensure compliance with its quality of service performance targets[375] (as noted in Section 5.7,

[368] Paragraphs 163 to 166 from Eircom's Non-Confidential Response dated 8 January 2021.
[369] Page 6 of BT's Non-Confidential Response dated 8 January 2021.
[370] Paragraphs 156 to 158 of the BRG Report dated 8 January 2021.
[371] Paragraph 5.172 of the Consultation.
[372] Paragraph 113 of Eircom's Non-Confidential Response dated 8 January 2021.
[373] Paragraph 165 of Eircom's Non-Confidential Response dated 8 January 2021.
[374] Paragraph 166 of Eircom's Non-Confidential Response dated 8 January 2021.
[375] Paragraph 165 of Eircom's Non-Confidential Response dated 8 January 2021.

ComReg has observed a significant improvement in the fault data where the Rural FTTH was deployed). Given that these assumptions in respect of the copper Capex only affects the cost forecasts in the TD approach, which is used to set cost oriented prices for a declining volume of legacy services (as a result of migration to NGA alternatives). ComReg are of the view that maintaining the 50% assumption will not have a material impact on Eircom's ability to recover its efficiently incurred costs.

5.618 Sky's advisers Analysys Mason expressed the concern that the unit Capex cost data for copper and FTTC network elements used to derive network Capex in the BU approach (which reuse the values from the Revised CAM) had not been updated. Analysys Mason considered that the associated price trends should be negative due to technological maturity, and to counter this, ComReg should update the unit capex costs and price trends.[376] A similar observation by Analysys Mason was provided in relation to the Opex-specific costs. BT also had similar concerns regarding this data not being updated.

5.619 ComReg notes that Eircom indicated it was not able to provide updated Capex costs as there was no planned copper/FTTC deployments as its focus was now on FTTH. As outlined above, ComReg considers that the level of copper related Capex being incurred by Eircom is primarily to ensure network performance in line with USO targets and SLA obligations.

5.620 As regards the point that price trends should be negative due to technological maturity, the Capex costs modelled in the ANM are associated with deployment of cables and CEI, which tend to be labour intensive activities. Therefore, ComReg does not accept that negative price trends are appropriate for such activity. In respect to the modelling of Opex costs, this point on price trends is discussed in Section 5.7.

Allocation of CEI capex to FTTH/FTTC

5.621 Sky, ALTO and Vodafone raised concerns with regards to the allocation of CEI costs between copper based FTTC, and FTTH, which they argued is at odds with the principle of cost causality. Sky noted that the "*accelerated pole replacement driven by Eircom investment in FTTH should be recovered in FTTH charges. Under ComReg's proposals, not only has the ANM not allocated these costs to FTTH, but the bulk of that accelerated investment cost is picked up by FTTC*."[377] Similarly, Sky's advisers Analysys Mason noted that the adjustment of the pole replacement cycle to suspend unplanned pole replacement leads to FTTC paying more for poles and FTTH paying less. Analysys Mason considered that this could lead to a situation where FTTC prices would be subsidising the new FTTH network over a number of years and doing so was contrary to ComReg's objectives around efficient investment and technological neutrality. It suggested that pole replacement costs should be

[376] Section 5.5.1, page 67 of the Analysys Mason Report.
[377] Paragraph 113 of Sky's Non-Confidential Response dated 8 January 2021.

allocated to the service causing the pole replacement, noting that copper services are being switched off in commercial areas.[378]

5.622 Vodafone's advisers Frontier Economics similarly pointed out that "*when defining the costs to be recovered from different technologies in the Urban Commercial area, ComReg should differentiate the costs which must be incurred to make the network "FTTH ready", not "NGA ready"*".[379] Frontier Economics also considered that the incremental costs relating to Eircom's FTTH deployment should be recovered from the FTTH technology only and only the costs relating to business as usual pole and duct replacement / remediation should be shared between FTTH, FTTC, and CGA technologies based on the estimated mix of subscribers across these technologies.[380]

5.623 However, according to the 2013 EC Recommendation, in order to determine the Regulatory Asset Base ('**RAB**'), "*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*."[381] The 2013 EC Recommendation also recommends that "*Where the topology of the NGA network to be modelled differs from the copper network to an extent that engineering adjustments to the NGA engineering model are not feasible, NRAs could obtain the copper cost by modelling an NGA overlay network, where two parallel networks (copper and fibre, either FttH or FttC) share to an extent the same civil infrastructure network. Under this approach, the inflationary volume effect would be neutralised for civil engineering assets because the modelled copper and fibre networks would share civil engineering assets. The unit costs of these assets, which represent the largest part of the costs of an access network, would therefore remain stable.*".[382]

5.624 Accordingly, ComReg considers that the approach taken in the ANM to share the costs of both reusable CEI and replacement CEI to the fibre and copper networks using relative active customer numbers on each network is consistent with the 2013 EC Recommendation. This approach is also consistent with the approach used in ComReg's 2016 Access Pricing Decision (which was followed in the 2018 WLA / WCA Market Review Decision). Hence, when modelling a copper-based NGA service such as FTTC operating in accordance with the 2018 Pricing Decision as an anchor technology[383] for competing full fibre services, it is on the basis of a CEI network which has been made fully NGA-ready. It also ensures, as noted by ComReg in subsection 5.6.3 that CEI access seekers looking to compete in these downstream markets by using Eircom's CEI network can do so on similar conditions and on the

[378] Section 5.5.8, page 72 of the Analysys Mason Report.
[379] Section 2.2.1, page 18 of the Frontier Economics Report dated 8 January 2021.
[380] Section 2.2.1, page 19 of the Frontier Economics Report dated 8 January 2021.
[381] Paragraph 33 of the 2013 EC Recommendation.
[382] Paragraph 42 of the 2013 EC Recommendation.
[383] See Section 6.7 of this Decision.

basis that the network being accessed has been made fully NGA-ready.

5.625 As also noted in subsection 5.6.3 when modelling a fully NGA-ready CEI network in order to set appropriate build/buy signals and encourage efficient investment, there are trade-offs involved between achieving exact cost recovery (adhering strictly to a cost causality principle) and the long-term gains of increased investment. However, ComReg is satisfied that the regulatory asset base costing methodology applied to re-usable CEI (in line with the 2013 EC Recommendation) in combination with the detailed measurement of the level of new CEI required, undertaken as part of the DAM and PAM cost models, mitigate appropriately the risk of over-recovery of CEI costs.

5.626 In a related issue, Sky's advisers Analysys Mason submitted that the allocation of common costs to services did not follow cost causation and that the common costs related to pole activities should be allocated to footprints in proportion to the pole replacement activity. Analysys Mason noted: "*Since ~80% of pole activity is related to the IA, it is evident that common costs for pole activities, ~EUR1 million in cost per annum, should be shared proportionally with the 80% of pole activity in the IA*."[384] Furthermore, insofar as the Urban Commercial Area footprint is concerned, Analysys Mason submitted that "*The majority (~75%) of the UC pole activity is caused by accelerated deployment for FTTH, and therefore the majority of urban pole costs should not be allocated generally to lines in the UC area*".[385]

5.627 With respect to the treatment of common costs for CEI, ComReg's proposed changes are detailed in the Opex Section 5.7. ComReg is of the view that the proposed changes address the concerns of cost causality highlighted above. For the avoidance of doubt, all costs that are considered relevant to pole activity in the NBP IA, including any common costs that are considered incremental to CEI Access in the NBP IA, are allocated to pole access services in the NBP IA.

5.628 ALTO also noted that ComReg appeared to have deferred to Eircom's claims around the FTTH deployment and the need to replace 25% of poles, adding that FTTC customers will be burdened with the costs of that investment, CEI and copper investment respectively. ALTO further considered that there is no possibility that 25% of poles in the urban areas need replacing, and if it is required then it highlights that the network was never maintained, and Eircom should not be rewarded for historical underinvestment.[386]

[384] Section 5.5.7, page 71 of the Analysys Mason Report.
[385] Section 5.5.7, page 71 of the Analysys Mason Report.
[386] Section 5 of ALTO's Non-Confidential Response dated 8 January 2021.

5.629 ALTO's points on the level of pole replacement in the Urban Commercial Area footprint and the allocation to downstream services have been revised downwards to less than 20% as noted in paragraph 5.328.

Modelling of E-Side/D-Side copper costs

5.630 Sky and Vodafone both raised concerns with regards to the modelling of the E-Side and D-Side copper costs, which underpin the costs of LLU and SLU.

5.631 Sky's advisers Analysys Mason identified the following issues on the allocations of E-side copper to SLU and POTS-based FTTC. First, the unit cost calculation of the E-side network elements should be based only on the services that use these network elements, and therefore exclude SLU and non-EVDSL FTTC lines. Second, SLU should not receive an allocation of copper E-Side duct assets. Analysys Mason notes that the original Revised CAM did not attribute any E-Side costs to SLU. Third, the calculation of the costs for the Supplemental charge for POTS-based FTTC should exclude the cost of E-Side copper assets. The cumulative effect of these flaws would be that copper E-side assets (with the exception of cable, joint and termination) are paid by both SLU and POTS-based FTTC and accordingly recovered twice from FTTC users using POTS-based FTTC, while FTTC users not using POTS-based pay for both E-side assets they do not use (from the SLU) and for E-side assets they use (from the NGA links). Analysys Mason concluded that to address these issues ComReg should use different volumes to calculate E-Side and D-Side unit costs and set all copper E-side allocation to SLU to zero.[387]

5.632 Vodafone highlighted a similar concern with respect to the allocation of E-Side capital costs between FTTH, FTTC and CGA services, submitting that it led to an over allocation of costs to FTTC. Vodafone's advisers Frontier Economics calculated that the over-allocation of E-Side capex to FTTC services (and a corresponding under-allocation to CGA services) amounted to €5.4m over 2021 – 2024.[388]

5.633 ComReg accepts that the modelling approach used in the Consultation's Capex module is not consistent with exact cost causation of all copper access services. However, the Revised CAM was finalised before the cost orientation of FTTC services, and at a time when Eircom recovered the same level of copper access related costs from FTTC services as it did for PSTN-WLR services. Consequently, in the Revised CAM, FTTC services were effectively recovering the equivalent of a full local loop, and it was not unreasonable that the unit cost calculations used the same number of physical copper active lines when calculating the costs of the D-side and E-side assets. It is also the case that the copper network was dimensioned to provide full loop services to all premises and FTTC was deployed to supplement the

[387] Section 5.5.3, pages 68 to 70 of the Analysys Mason Report.
[388] Section 2.2.2, pages 20 - 21 of the Frontier Economics Report dated 8 January 2021.

broadband capability of an existing copper network, while most FTTC customers continued to use a POTS service, which Eircom provides using the full copper loop.

5.634 However, the 2018 Pricing Decision set cost-oriented prices for FTTC while recognising that it was no longer appropriate to assume that all copper-based services make equal use of E-Side and D-Side assets, given that an increasing proportion of FTTC services are provided on a standalone basis and only make use of SLU. In the 2018 Pricing Decision this issue was partly addressed in the cost modelling by setting the usage factors of E-Side cables to 0 for the SLU service in recognition of the fact that the Revised CAM had included SLU volumes when deriving the unit costs of E-side assets. The usage factor of 1 for E-Side duct assets was intended to recognise that the SLU input to the NGA Cost model is connected to the exchange by the NGA link and, as the E-Side copper usage of the E-Side duct decreases, the allocation to the NGA link increases, i.e., the duct costs are mainly length dependent and fixed.

5.635 Having considered the Respondents' submissions, ComReg accepts that it is more accurate to derive the unit costs for E-Side and D-Side assets modelling different copper volumes for E-Side and D-Side usage, as suggested by Analysys Mason, and has now done so in the Capex module. ComReg has set the SLU usage factors to zero for both E-Side copper and E-Side CEI network elements and excluded SLU volumes when deriving the unit costs for all E-Side assets. As a result, the unit costs for SLU based services such as standalone FTTC decline, while modelling smaller volumes for the E-Side calculations means that the unit costs for LLU based services such as EVDSL, ADSL (i.e. CG SABB) and PSTN-WLR increases.[389]

5.636 Eircom stated that it was clear that no evaluation/calibration of the model to Eircom's TD accounts or its actual network had been undertaken by ComReg to ensure that the ANM is functioning correctly. Eircom also commented that the ANM's TD scenario assumed that PSTN-WLR volumes will continue to be reasonably constant and will only decline significantly following deployment of FTTH: "*ComReg does not present any sensitivity analysis of the impact of PSTN-WLR prices against a range of scenarios for migration from eir network to the State funded FTTH network in the Regional FACO market …()…coupled with the fact that ComReg proposes to favour not revisiting the price path over the price control period increases the level of uncertainty for eir's actual cost recovery*".[390]

5.637 ComReg disagrees that the TD approach in the ANM has not been calibrated to Eircom's TD accounts or actual network. The base year operating and capital costs in the model have been reconciled to the AFI and Fixed Asset Register cost data provided by Eircom, while base year service demand in the TD approach in the ANM

[389] Although, as noted in paragraph 1.15, ComReg in this Decision is not updating prices with respect to PSTN-WLR.
[390] Paragraph 138 of Eircom's Non-Confidential Response dated 8 January 2021.

makes direct use of the exchange level service demand data provided by Eircom. As discussed in paragraphs 5.104 to 5.106 on Service Demand, the forecasting of service demand has also been reviewed since the Consultation and the use of NBI information has been sense checked against the available demand data following Eircom's rural FTTH deployment.

5.638 Eircom expressed concerns with the functionality of the ANM, whereby the forecast of network assets was static with regards to the number of premises, which its advisers consider unusual for a Bottom-up model. BRG submits that, given the modelled increase in the number of premises, "*the quantity of assets in later years will be understated*".[391]

5.639 ComReg notes that, in terms of network dimensioning, the primary consequence of an increase in premises would be on cable capacity in the distribution network and in connections. The E-Side and D-Side cable deployments in the ANM are dimensioned in terms of premises passed and this is always significantly greater than premises connected. Therefore, ComReg is of the view that the allowances for spare cable capacity factored into the ANM (notwithstanding the corrections made to E-Side cable spare capacity) are sufficient to cater for any additional demand that would arise due to an overall increase in the number of premises in future years. ComReg has increased the allowance for connection costs to be better align with the number of active lines in future years. Consequently, ComReg is of the view that the network as now dimensioned in the ANM allows for sufficient capacity to cater for future premises growth. Furthermore, this feature of the ANM was present in the Revised CAM, where the Bottom-up geospatial and network dimensioning was also a static input with regards to the level of demand. Having the ANM Geospatial module linked dynamically to changes in the number of premises, as it appears to be BRG's suggestion – would add considerable complexity to the ANM and could only add to Eircom's concerns that the ANM is already "*unnecessarily complex*".[392]

Other issues

5.640 Eircom's advisers BRG considered there were two mathematical errors in the modelling of the ANM TD approach. Firstly, BRG noted that the depreciation for assets which were acquired before 2009, is adjusted for the year in which the change took place (2009) by dividing the remaining NBV of the asset by the average of the asset life before and after the asset life change. BRG considered it should instead calculate an average of the annuities (calculated as asset value divided by asset life), rather than averaging the asset lives.[393] Secondly, BRG considered that the cost of capital calculated using the average NBV for the year in the "Calc_Network_Capex_TD" worksheet was incorrect as it used the year-end NBV rather than the in-year

[391] Paragraph 145 of the BRG Report dated 8 January 2021.
[392] Paragraph 126 of Eircom's Non-Confidential Response dated 8 January 2021.
[393] Paragraph 169 of the BRG Report dated 8 January 2021.

average. BRG suggested using the in-year average and comparing to the previous year's NBV.[394]

5.641 With regards to the first issue of depreciation, ComReg considers that both the ANM and BRG approaches are reasonable approximations to the actual figures. The impact of changing this calculation is minimal and ComReg considers that the ANM approach (as consulted on) maintains a consistency with the Revised CAM. With regards to the second issue, ComReg agrees that the calculation of the average NBV in the "Calc_Network_Capex_ TD" worksheet should be corrected to refer to the in-year average rather than the year-end and consequently, ComReg has updated the calculations.

5.8.3 Conclusion

5.642 In summary, having considered the Respondents' submissions, ComReg remains satisfied that the Capex module, presented in the Consultation, is a reasonable basis for determining the costs of copper and fibre-based access services subject to a number of updates and amendments as described above (in addition to processing the changes in each of the other ANM modules), including in particular:

(a) Updates to reflect Eircom's IFN data, impacting on poles and duct Capex, as discussed in paragraphs 5.324 to 5.329;

(b) Changes to modelling of E-Side/D-Side copper (paragraphs 5.630 to 5.639); and

(c) Updating the copper cable Capex (paragraph 5.613 to 5.620) and resetting the NBV and WACC rates for historic investments (paragraph 5.611 to 5.612).

5.643 In addition to this and for the purpose of updating the costs associated with CG SABB, ComReg has also updated the list of exchanges in the Regional WCA, following the 2021 WCA Market Mid-term Assessment Decision.[395]

5.644 The Capex module presented in the Consultation has been finalised on this basis and the amendments made are reflected in the prices set out in Section 7.

5.9 Assessment of FTTH connection costs in the ANM

5.645 In Section 5.9 of the Consultation ComReg outlined the ANM's draft modelling of FTTH connection costs[396] and sought the views from stakeholders on the assumptions in the ANM's draft modelling of FTTH connection costs.

[394] Paragraph 170 of the BRG Report dated 8 January 2021.
[395] Ibid footnote 33.
[396] Section 8, of the Consultation dealt separately with factors relevant to on-going FTTH connection costs.

5.9.1 Position set out in the Consultation

5.646 In the Consultation ComReg explained that the ANM includes the rollout of FTTH in the modelling undertaken as part of the Service Demand module. ComReg considered that the availability of FTTH will have a number of impacts on Eircom's access services (e.g. copper switch-off) and their prices (e.g. the allocation of common cost). ComReg noted in the Service Demand module section of the Consultation that it recognised the impact of FTTH on the modelling of service provision through copper – i.e. on deployment of FTTH in an exchange, then after a number of years copper services will be switched off. For example, end-users seeking a voice only service will, after copper switch-off, be provided their service via FTTH using a voice over broadband solution. Copper switch-off is at the earliest expected to start in 2025 in the ANM.

5.647 ComReg proposed to model costs for FTTH connections in the Capex module in terms of standard / non-standard connections on the preliminary view that it was appropriate for forecasting the customer specific costs associated with FTTH connections in the Urban and Rural Commercial Areas. The modelling of FTTH connection costs was informed by the connection costs incurred by Eircom as part of its FTTH Rural (300k) programme disaggregated detail of which had been provided by Eircom allowing for a distinction between standard and non-standard activities. Based on this data, ComReg calculated the percentage of labour and material costs associated with the different classifications and applied different annual cost trends to each cost category. Future FTTH connection costs reflect these cost trends and are calculated using the forecast of FTTH connection volumes that is derived in the Service Demand module, as discussed in paragraphs 5.48 to 5.52 of the Consultation.

5.648 ComReg noted that the split between labour and materials was modelled to be in the range of 65 to 75% versus 35 to 25% for standard connections, and to be in the range of 80 to 90% versus 20 to 10% for non-standard connections. The assumption in the draft Capex module was that this split would remain relatively fixed over time, albeit with labour increasing its share of costs due to wage inflation and future decreases in the price of materials. ComReg was also of the view that the experience gained in the Rural Commercial Area deployment provided a sufficiently robust sample pool to gauge the mix of standard and non-standard connections.

5.649 In relation to the various footprints, ComReg noted in the Consultation that the Rural Commercial Area footprint is assumed to have 100% coverage, given the contractual commitments by Eircom in that area. As mentioned earlier, as FTTH deployment in the NBP IA will be conducted by NBI, the costs of NBI's FTTH connections are not calculated/included in the ANM. ComReg expected that the level of non-standard connections in the Rural Commercial Area would be higher than in the Urban Commercial Area footprint on the basis that premises in urban settings are less likely

to be one-off premises that present unique challenges in connecting them. Consequently, ComReg set the percentage of non-standard connection at circa 10% in the Rural Commercial Area footprint but 0% in the Urban Commercial Area footprint.

5.9.2 Respondents' views and ComReg's assessment

5.650 Two Respondents (Eircom and Vodafone) made submissions in response to Question 8 on whether the assumptions to model FTTH connection costs in the draft ANM were appropriate. Sky did not comment directly, however its consultant Analysys Mason cross referenced its response to Question 17 (which sought Respondents' views on the appropriate factors in setting charges for FTTH connections and migrations and whether ComReg's consideration of these was relevant and complete).[397] BT indicated that it had no comment.

5.651 Vodafone considered that the approach appeared reasonable.[398]

5.652 Eircom stated that while the Consultation contained a "*reasonable characterisation*" of situations encountered it was too soon to understand all the circumstances and costs of non-standard connections for FTTH in the Urban Commercial Area. Eircom described several issues which it expected to be encountered during its FTTH deployment in the Urban Commercial Area. These issues were: mole ploughing for new duct (due to prior decisions around copper deployment by Eircom); difficulty replacing existing copper services provided by "slung leads" with fibre; and internal access paths to consumers residing in multi-dwelling units. Eircom submitted that these issues would increase the proportion of non-standard urban FTTH connections and consequently the average cost. Eircom also cross referenced its response to Question 17.[399]

5.653 ComReg notes Eircom's response which focused on potential issues which may emerge and cause non-standard connections over the course of deploying its FTTH network in the Urban Commercial Area footprint. However, in the absence of any quantification of the volumes (or costs) involved or anticipated across the various issues shared then ComReg does not consider that it would be prudent to alter the assumption around non-standard connections in the modelling from zero to some higher amount.

5.654 ComReg also notes Eircom's response to Question 17 that the current wholesale charge of €100 appears sufficient to balance out the various extra aspects with regards to risks which Eircom raised.[400]

[397] Section 5.6, page 72 of the Analysys Mason Report.
[398] Page 8 of Vodafone's Non-Confidential Response dated 8 January 2021.
[399] Paragraphs 117 to 122 of Eircom's Non-Confidential Response dated 8 January 2021.
[400] Paragraphs 305 to 308 of Eircom's Non-Confidential Response dated 8 January 2021.

5.9.3 ComReg's final position

5.655 Having considered Respondents' submissions having regard to the purpose of the ANM, ComReg is satisfied that the modelling approach adopted in the Capex module whereby FTTH connections are costed in terms of standard and non-standard connections is appropriate for forecasting the customer specific costs associated with FTTH connections in the Urban and Rural Commercial Area footprints in Ireland.

6 Pricing approach for access services

6.1 Overview

6.1 This section sets out the pricing approach for the following access services in accordance with their applicable price controls: LLU, SLU, Dark Fibre, Line Share and CG SABB. This section also examines the implications of the update of the ANM on the pricing of FTTC and CG Bitstream services.

6.2 Prior to doing so, however, this section addresses proposals offered by Eircom[401] (which it described as 'voluntary commitments') in its response to the Consultation, subsequently updated in April 2021, in lieu of prices being updated based on the ANM (and the NGA Cost Model and the NGN Core Model).

6.2 Eircom's Proposals

6.3 In its response to the Consultation Eircom raised concerns that ComReg's approach to maintain cost orientation obligations for fixed line access services and update prices using the ANM (and the updated NGA Cost Model and NGN Core Model) was detrimental to investment incentives and network competition and therefore inconsistent with ComReg's regulatory objectives, including that of providing certainty. Eircom claimed that ComReg's approach fails in relation to the Framework Regulations (Regulation 16 2(a) and (b)) by dampening the incentive to deploy FTTH; the Access Directive (Article 13(1)) by not allowing a reasonable return on adequate capital employed; and the 2013 EC Recommendation in relation to cost recovery and using a costing methodology to provide build/buy signals.

6.4 Eircom outlined that reductions in the price of FTTC will undermine the migration path for customers from FTTC to FTTH as ComReg's proposals for FTTC would cause slower migration by end-users; downward pressure on FTTH price; and cause detriment to the business case related to a smaller deployment and lower availability of VHCN. Eircom argued that further: "…*price reductions for FTTC (and CGA Bitstream) will limit the scope for FTTH investment in Ireland and will result in retaining an outdated focus on competition based on regulated access to active products*".[402] Eircom suggested that ComReg's proposals should "*explicitly recognise the implications for FTTH investment and migration incentives*."[403] Eircom considered the Ofcom approach is an example of best practice and suggested that

[401] Pages 5, 6 (and detailed in Annex 2) of Eircom's Non-Confidential Response dated 8 January 2021.
[402] Paragraph 239 of Eircom's Non-Confidential Response dated 8 January 2021.
[403] Paragraph 243 of Eircom's Non-Confidential Response dated 8 January 2021.

ComReg should follow it rather than "*strict cost orientation… without due consideration to the overall market context and policy objectives…*".[404]

6.5 Eircom considered that "*regulation in these areas needs to tread lightly and be sufficiently flexible*" so as to achieve an appropriate balance for nascent technologies, and that allowing over-recovery of costs (from FTTC) is "*better than imposing cost-based charge controls which risk undermining investment*".[405] Eircom considered that there was a "*limited premium available between FTTC and FTTH*" and that the price premium of FTTH relative to FTTC is very elastic, as indicated by recent prices changes it introduced for FTTH services.[406] Eircom suggested that the "*new entrant would either not invest (or further invest) in FTTH or would at a minimum maintain FTTC prices at current levels to ensure the migration path to FTTH is preserved and to contribute capital for FTTH deployment costs*".[407]

6.6 Accordingly, instead of the set of prices proposed by ComReg on the basis of the ANM, Eircom proposed a series of 'voluntary commitments' to apply for a duration of five years in order to achieve "*pricing continuity*", i.e. to continue to apply existing prices instead of updating them in accordance with the costs calculated using the ANM.[408] Eircom's proposals expand on previous proposals made by Eircom in February 2020 with respect to the FACO markets and Eircom made explicit reference to Article 79 EECC which, in short, sets out a commitments procedure whereby an SMP operator may offer an NRA commitments regarding conditions for access which the NRA, unless the commitments are clearly not satisfactory, may make binding following market testing by way of consultation with affected parties.

6.7 Eircom's proposals, as detailed in Annex 2 of Eircom's Response, included a set of proposals by regulated markets, as follows:

(a) For PSTN-WLR Eircom proposed that the existing monthly price of €16.59 would continue until 30 June 2022. From 1 July 2023 the price would be increased to €16.82 for the duration of the price control period. The Supplemental charge for POTS would remain as per the prices set in the 2018 Pricing Decision;

(b) For LLU and SLU services, the existing prices of €11.52 and €6.12, respectively, would continue to apply for the duration of the price control;

(c) For CGA services, the existing CG SABB prices of €22.17 and €23.17 per month for 8MB and 24MB, respectively, would remain unchanged for the first two years of the price control, and thereafter increased by CPI + 5%. For CG Bitstream and Bitstream IP, prices would be set at €8.88 per port and €9.37 per port,

[404] Paragraph 245 of Eircom's Non-Confidential Response dated 8 January 2021.
[405] Paragraph 278 of Eircom's Non-Confidential Response dated 8 January 2021.
[406] Paragraph 279 of Eircom's Non-Confidential Response dated 8 January 2021.
[407] Paragraph 280 of Eircom's Non-Confidential Response dated 8 January 2021.
[408] Pages 5 and 6 of Eircom's Non-Confidential Response dated 8 January 2021.

respectively, unchanged for the first two years of the price control, and thereafter increased by CPI + 5%.[409] Usage charges for all CGA services would be set at €0.47 per MB for the duration of the price control period and would not be subject to change;

(d) For FTTC, Eircom proposed to continue to charge a fixed price for FTTC VUA and FTTC Bitstream for the duration of the price control. The monthly charges for FTTC VUA would be €20.36, FTTC Bitstream would be €25.27, and the usage charge for FTTC Bitstream would be €0.37 per MB. Eircom also proposed [✂ ✂].

6.8 In general terms, ComReg welcomes Eircom's willingness to engage and notes that, with the introduction of the EECC, proposals offered by undertakings designated as having SMP, which satisfy the criteria referred to in Article 79 of the EECC and are made binding on the undertaking, may be taken into account by ComReg in determining the appropriate level of regulation of a market. As of October 2021, however, Article 79 of the EECC has yet to be transposed in Irish law and ComReg currently has no statutory basis in Irish law on which to accept commitments and make them binding as envisaged in Article 79. Without prejudice to this, ComReg has nevertheless reviewed Eircom's Proposals set out in Eircom's Response and as updated in April 2021, as against the requirements set out in Article 79.

6.9 For the reasons set out below, and again quite apart from the fact that ComReg is not currently empowered to accept commitments, ComReg is of the view that the proposals on their own are insufficient to address all of the competition problems which the 2018 WLA/WCA Market Review Decision identified and addressed through the imposition or continuation of an obligation of cost orientation in respect of products and services within the WLA and Regional WCA Markets (save as regards FTTH). Having considered them in detail, ComReg does not see in Eircom's proposals evidence that they are of a "*fair and reasonable character*" nor anything that is susceptible to enable sustainable competition on downstream markets and facilitate deployment and take-up of very high capacity networks in the interest of end users, both matters that Article 79(2) requires NRAs to have particular regard to.

6.10 By and large, Eircom's proposals consist of the continuation of the existing access prices based on the Revised CAM allowing Eircom a rate of return at the prevailing WACC rate applicable at the time the prices were set (i.e. 8.18%). However, ComReg

[409] In April 2021, Eircom submitted a further update in relation to its 'voluntary commitments' related to CG services, which was to include a condition that in Eircom exchange areas where the fibre to the premise availability reached 75% (across the Eircom access network and the NBP access network) then after a notice period of six months the prices would increase to a price not exceeding €29.72 per month for CG SABB, CG BMB and CG Bitstream IP, and the price charged for usage would be €0.31 per MB. See https://www.comreg.ie/publication/faco-rfts-information-notice-eircom-proposals.

notes that its update of cost modelling including the ANM, the NGA Cost Model and NGN Core Model, and the WACC (now set at 5.56%), reflected in the prices set in this Decision, show that current prices for FTTC VUA, FTTC Bitstream and CG Bitstream are above costs and there is no evidence that retaining the existing prices (including price increases above inflation for some services) are fair or reasonable to Access Seekers purchasing these services. Quite the contrary, freezing current regulated prices would only work to Eircom's benefit, which appears to be neither fair nor reasonable.

6.11 ComReg also notes that the fairness and reasonableness of Eircom's proposals are questionable when the proposals are limited to prices and do not include any other measures of any sort for the purpose of enabling sustainable competition on downstream markets or to facilitating cooperative deployment and take-up of very high capacity networks in the interest of end-users. While high prices on copper-based networks may be seen by Eircom as a way to encourage migration to fibre-based services, in the absence of any specific measure which ensures availability of such fibre services, high prices above the efficient cost-oriented level will not be in the interest of end-users.

6.12 ComReg in this regard fundamentally disagrees with what appears to be the sole premise for Eircom's proposals, namely that changes to current prices would undermine investments and be inconsistent with ComReg's objectives of promoting efficient investment, including encouraging investment in full fibre networks. Updating cost models does not in any way alter the existing price control obligations of cost orientation, nor does it alter the regulatory objectives underlying the established price controls, and this is consistent also with the EC comments to ComReg to update the Revised CAM[410] and to reflect the latest fixed line WACC[411]. For the avoidance of doubt, ComReg agrees that regulatory certainty, including the predictability of prices, is an important aspect of creating the right environment for all operators to make investment decisions. As stated in the 2020 WACC Decision, ComReg's policy is that where prices have been set for a price control period, ComReg will not intervene during that price control period unless circumstances are materially different from those envisaged at the time of the pricing decision or exceptional circumstances have otherwise arisen. ComReg's update of FTTC prices is entirely consistent with ComReg's stated intentions, ComReg having signalled at the time of the 2018 Pricing Decision that prices might be amended following its decision on WACC, and ComReg's updating of prices is justified by the fact that the combined impact of the updated ANM and the updated WACC is material.

[410] See Appendix 2 of the 2018 WLA/WCA Market Review Decision.

[411] See Annex 5 of the 2020 WACC Decision.

6.3 Pricing approach for LLU/SLU

6.3.1 Position set out in the Consultation

6.13 In the Consultation ComReg was of the preliminary view that prices for LLU/ULMP[412] and SLU should be derived based on the Urban Commercial Area footprint (while maintaining the existing BU-LRAIC+ methodology for Non-reusable Assets and TD FAC for Reusable Assets as discussed at Section 3) and the price control should be in the form of a maximum price that Eircom can charge for those services.

6.14 In reaching its preliminary view, ComReg noted that it is the copper access network that is used to provide the access paths that support PSTN-WLR, LLU, and SLU, as well as FTTC services which rely on LLU and SLU equivalent inputs, and therefore the factors of relevance to the pricing of these services include: the number of active lines; the length of those lines (on average); the distribution of premises (which influences the type and size of cables needed to serve those premises); and the costs associated with operating the copper access network.

6.15 ComReg also noted that the external demand for LLU by OAOs has declined in recent years, and was less than 2.5k at that time, and was expected to be immaterial for the duration of the proposed price control period. As for SLU, there had been no external demand for this service and the associated investment costs for co-locating equipment at an Eircom cabinet appeared to be prohibitive given the limited level of demand available at each cabinet.

6.16 Consequently, the pricing approach for LLU and SLU as standalone services that are bought by OAOs was not a significant concern given the immaterial demand by OAOs for these services. However, SLU and LLU are key elements of the cost stack underpinning the price for FTTC services, providing the copper network costs from the VDSL cabinet to the customer premises for Standalone FTTC and similarly from the local exchange to the customer premises for EVDSL and POTS based FTTC. As the full copper loop and sub loop continue to be used in the provision of FTTC based services ComReg considered that it is important to review the prices for LLU (equivalent to a full copper loop) and SLU (equivalent to the copper sub loop) in the context that the prices for these services can also inform the prices charged for FTTC services.

Line base

6.17 In accordance with the 2018 WLA/WCA Market Review Decision, the prices for LLU and SLU are set by reference to the averaged costs incurred by an efficient operator providing LLU/SLU within the Modified LEA based on a combination of a BU-LRAIC+ methodology and a TD HCA methodology, with the BU-LRAIC+ approach applied to

[412] See footnote 50.

those assets that cannot be reused for NGA services and the TD approach applied to those assets that can be reused for NGA services (i.e., reusable ducts and poles).

6.18 In the 2018 Pricing Decision[413], ComReg determined that the appropriate line base for calculating the costs of the LLU input into the VUA cost calculations was all copper lines excluding, for LLU, lines extending further than 3km from the local exchange and for SLU, lines extending further than 1.5km from the cabinet, on the basis that these line lengths are more typical of the maximum line lengths used in providing FTTC and EVDSL services to the required NGA standard of broadband of at least 30 Mbps. However, ComReg considered that, due to developments in the geospatial modelling in the ANM, applying the 3km or the 1.5km line length limits was no longer necessary; instead, ComReg proposed that the costs of LLU and SLU are those of the lines serving premises in the Urban Commercial Area footprint in the ANM.

6.19 ComReg noted that the Urban Commercial Area footprint has been set to include only those premises that are close enough to the exchange or FTTC cabinet to avail of a viable FTTC based service, whereas all lines serving premises that cannot receive a viable FTTC based service are included in the other footprints. Therefore, all lines in the Urban Commercial Area footprint can support a viable FTTC service. Consequently, no further adjustments to exclude lines in excess of a certain line length was required in ComReg's view as using the Urban Commercial Area footprint to inform the prices for LLU and SLU will ensure that the incremental costs of all lines that cannot support a viable FTTC based service (i.e. those lines serving premises in the Rural Commercial Area and NBP IA footprints) are excluded from the cost analysis when setting the prices for those services.

Operating and Common costs

6.20 ComReg noted that the operating costs (Opex) in the ANM had been updated based on the most recently available Eircom's HCAs (2017/18 and 2018/19 at the time of the Consultation) as described in Section 5 of the Consultation, but because the BU approach in both the Revised CAM and the ANM assumes an efficient level of operating costs consistent with a recently deployed access network, there would not be the same level of variation between the direct operating costs that are modelled in the BU approach for both the Revised CAM and ANM models as there might be for the costs in the TD approach. For example, in both the Revised CAM and the ANM, the direct R&M costs are modelled to be significantly lower in the BU approach than in the TD approach, but the level of BU R&M costs is comparable in both models.

6.21 ComReg noted that the level of direct R&M staff modelled in the BU scenario is similar in both the Revised CAM and the ANM, and any changes in BU R&M costs for copper over time arise from the changes in the number of active copper lines

[413] See paragraphs 6.210 to 6.237 of the 2018 Pricing Decision.

(decreasing) and the impact of wage inflation (increasing). As a result, the R&M costs related to the BU copper network in the ANM were circa €20M.

6.22 In respect of indirect and common corporate costs (including network rates), ComReg noted that they had been updated based on the 2017/18 and 2018/19 HCAs and then re-scaled, as appropriate, for the BU approach. As described in Section 5.7 of the Consultation, all common costs were to be recovered from both copper-based and fibre-based services sold in the commercial footprints and ComReg proposed to maintain the same approach to common corporate cost recovery that applied in the 2018 Pricing Decision, i.e. that all common corporate costs are recovered from those services sold in the commercial footprints (e.g. Urban Commercial Area, Rural Commercial Area) and that those common corporate costs are recovered on a per service basis, i.e. the same level of common corporate cost is recovered regardless of whether the commercial service uses an LLU or SLU cost input.

Usage factors

6.23 ComReg also noted that, as was the case in the Revised CAM, the usage factors for the SLU service in the ANM had been set to zero for the E-Side copper network elements to recognise that SLU does not use E-Side copper cables, except that the SLU usage factor for Opex had been set to 0.85 for SLU, compared with 1.0 for LLU to recognise the reduction in operating costs associated with not having to maintain the E-Side copper pair. In addition, the SLU usage factors for E-Side duct and trench had been set to 1.0, in recognition of the fact the E-Side duct and trenches are joint costs that are shared by the copper cables and the NGA Fibre link cables that connects the FTTC cabinet to the exchange. ComReg noted that having a usage factor of 1.0 for the SLU component ensured that E-Side duct and trench costs are not stranded as customers migrate from PSTN-WLR to FTTC based VUA.[414]

CEI costs

6.24 ComReg explained that a significant component of the copper access cost related to the costs of duct and poles. In the Revised CAM, the duct and pole costs were estimated using Eircom's Indexed RAB on the basis of 95% reuse of Eircom's duct base and 92% reuse of Eircom's pole base using projected TD costs to recognise the costs of duct and poles absent NGA roll-out. In addition, there was a provision of an additional 5% for duct replacement and 8% for pole replacement due to expected NGA deployment based on BU-LRAIC+ costs.

6.25 ComReg noted that when the Revised CAM was finalised there was limited information as to when and where FTTH might be deployed by Eircom, therefore ComReg had determined that using the replacement factors, mentioned above, to

[414] Usage factors are used to determine the extent that different Network Elements are used by different services. Details of the Usage Factors used in the ANM can be found in the "Copper Cost Allocation Matrix" in the "Input Other" worksheet of the ANM Capex module.

value non-reusable poles and ducts was necessary to recognise the need to replace existing CEI assets in the event that NGA services would be deployed in all parts of Ireland. The analysis undertaken by ComReg at that time indicated that building such a network would necessitate Eircom having to replace a greater number of poles and ducts in order to deploy fibre cables more extensively in the access network than had been the case before 2016 (see paragraphs 4.138 to 4.144 of the 2016 Access Pricing Decision).

6.26 ComReg noted further that while the ANM continued to value the reusable CEI on the basis of Eircom's TD costs and replacement CEI on the basis of BU-LRAIC+ costs, since 2016, a number of developments had taken place which ComReg had to factor into the overall cost modelling for CEI and, in particular, for the BU valuation of replacement CEI. Eircom had completed deployment of its 300k rural network and announced plans to overlay FTTH in urban areas, while NBI was planning to pass 540k premises with FTTH in the NBP IA. The fact that Eircom has deployed its 300k FTTH rural network since 2016 meant that significant information relating to the costs involved in replacing and remediating duct and poles to facilitate an extensive NGA roll-out was available. ComReg and its advisors (Cartesian) undertook a detailed analysis of this information to determine the current unit costs associated with replacing duct and poles in order to make them NGA ready.

6.27 The modelling in the ANM combines current cost information (from the Rural Commercial FTTH deployment) with Eircom's plan to overlay FTTH to pass approximately 1.45m[415] premises over 5 years in the Urban Commercial Area footprint. ComReg noted that this meant that a BU valuation (current costs by quantity of duct and poles to be remediated/replaced) of the CEI related expenditure that Eircom can be expected to incur for each year of its planned FTTH deployment could be derived in the ANM. ComReg proposed that the BU valuation be locked-in as an investment cost in that year and rolled forward from one year to the next to inform the annualised costs of duct and poles in future years. By 2024, when the planned FTTH deployment was modelled to be complete, all the remediation/replacement of CEI necessary to make the network in the Urban Commercial Area footprint NGA ready would also be complete and the annualised duct and pole costs for 2024 and subsequent years could be considered as the annualised cost for a CEI network that is 100% NGA ready.

6.28 Consequently, instead of using the 95% TD and 5% BU approach used in the Revised CAM to determine the RAB valuation for ducts, the earlier years modelled in the ANM could reference the 2024 duct costs to determine the costs of a duct network in the Urban Commercial Area footprint that is 100% NGA ready. Similarly, the NGA ready pole costs in the Urban Commercial Area footprint could be determined with reference to the post 2024 costs of poles. ComReg proposed

[415] https://www.eir.ie/pressroom/eir-launches-0.5-billion-fixed-network-investment-programme/

accordingly to apply for each of the pre-2024 years in the ANM an 'uplift' to the annualised duct and pole costs to ensure that the costs are always modelled to be consistent with the 100% NGA ready network that was modelled in the year beginning July 2023. The mark-up[416] was highest in earlier years and declined to zero by 2024, as locking-in the CEI investment each year meant that the subsequent year's TD costs included an increasing proportion of the CEI investment required to make the network NGA ready, as recommended in the 2013 EC Recommendation, in particular paragraphs 32 to 35.

6.29 ComReg was of the view that this approach continues to recognise the extent that existing CEI can be reused for NGA by using a TD valuation to take account of the assets' elapsed economic life and thus of the costs already recovered by Eircom, while also using a BU valuation to capture all the incremental CEI investments that Eircom needs to undertake to ensure that all duct and poles are capable of supporting a full NGA deployment.[417]

Modelled LLU/SLU prices

6.30 Using the methodology outlined above and the updated underlying data and parameters (including the relevant WACC rate of 5.61% as at the time of the Consultation), the 2021/22 monthly price as outputted by the ANM in the Consultation for LLU was €12.72[418] and for SLU was €10.39, as compared with existing prices of €11.52 for LLU and €6.12 for SLU. The main reason for the observed increases was that the costing approach for LLU and SLU was updated in the ANM to align with the approach adopted in the 2018 Pricing Decision to determine the costs of the LLU and SLU inputs that are used to inform the prices for FTTC based services. These updates included deriving the unit costs of LLU and SLU with reference to the line base capable of serving premises in commercial areas and recovering common corporate costs on a per service basis, such that the same level of costs are recovered from an LLU based service as an SLU based service.

6.31 ComReg explained that maintaining a consistent approach to the costing of LLU and SLU with that taken in the 2018 Pricing Decision recognises that the main demand for LLU and SLU now arises from their use as inputs to provide FTTC based services (including EVDSL).

6.32 ComReg considered that the most significant implication of the changes to the LLU and SLU prices derived from the ANM modelling related to the potential implication that these changes have for the prices of FTTC based services. In that context, ComReg did not consider that it would be appropriate or proportionate to require

[416] Please see paragraphs 8.32 to 8.33 of the Consultation's Specification Document for further information.
[417] A full description of the approach taken to the valuation of Duct and Poles can be found in subsection 5.6.
[418] This excluded the monthly fault rental charge of €0.63.

Eircom to amend LLU and SLU prices to the level of costs calculated in the ANM. ComReg accordingly was of the preliminary view that the prices derived in the ANM for LLU and SLU should be set as the maximum prices that can apply for the price control period.

6.3.2 Respondents' views and ComReg's assessment:

6.33 Two Respondents (BT and Eircom) provided a specific response to Question 11. Sky and ALTO did not reply directly to Question 11 but ComReg has considered Sky and ALTO's general response in its assessment of responses to Question 11.

6.34 In summary, BT disagreed with ComReg's proposed maximum prices and considered that the prices should remain unchanged during the price control period to avoid risk of price increases.[419]

6.35 Briefly, Eircom agreed to the proposal of maximum prices,[420] and proposed that the existing prices continue via a 'voluntary commitment'.[421] Eircom partially agreed with the use of the Urban Commercial Area footprint but was of the view that ComReg incorrectly calculated the local loop costs for FTTC Bitstream prices. Eircom also described what it considered a number of modelling errors and presented 'corrected' LLU and SLU prices.[422]

6.36 In summary, having considered the Respondents' submissions, ComReg's final position is that the pricing of LLU and SLU should be as proposed in the Consultation, subject however to the modelling changes discussed in Section 5 for the reasons discussed below.

6.37 ComReg's consideration of the issues raised by Respondents and ComReg's final position are set out below under the relevant subheadings.

Price control based on maximum prices

6.38 BT disagreed with ComReg's analysis regarding SLU and submitted that it created wide price variations. BT considered that ComReg's proposal to set LLU and SLU as maximum prices, "… *was unhelpful, as the obvious will happen, and prices will rise…In our view the prices should remain unchanged during this price control period given the legacy nature of LLU and the importance of the SLU price to the FTTC pricing given it's a cost input to that service*."[423]

[419] Page 8 of BT's Non-Confidential Response dated 8 January 2021
[420] Paragraph 203 of Eircom's Non-Confidential Response dated 8 January 2021.
[421] Paragraph 204 of Eircom's Non-Confidential Response dated 8 January 2021.
[422] Paragraphs 182 to 187 of Eircom's Non-Confidential Response dated 8 January 2021.
[423] Page 9 of BT's Non-Confidential Response dated 8 January 2021.

6.39 Eircom, on the other hand, agreed to the proposal of maximum prices for LLU and SLU given the low external demand for these access services[424] and accepted that "*the prices derived for SLU and LLU are not so much for the purposes of a standalone service (given the level of demand which is continue declining and in the case of SLU non-existent) but as a building block for FTTC prices*."[425] Eircom proposed that the existing wholesale access prices continue via a 'voluntary commitment' for the duration of the price control period. However, Eircom also noted this would not apply to the SLU and LLU when used as inputs as those inputs "*should be set based on the costs derived from the corrected ANM*".[426]

6.40 In response, ComReg notes that the external demand for LLU continues to decline (and as at Q2 2021 is circa 1,600[427]) while no external demand exists for SLU. Consequently, as outlined in the Consultation, the main purpose in modelling the costs for LLU and SLU in the ANM is to determine the appropriate input costs for pricing FTTC services, and ComReg remains of the view that the prices for LLU and SLU that are derived in the ANM should be set by way of maximum prices when the service is provided to an Access Seeker. The fact that the number of active LLU lines has declined by circa 20% in the last year and is trending below 1,600 highlights that increasing the existing LLU prices would not have a material impact on costs or revenues. Nonetheless, deriving the maximum price for LLU in the ANM rather than the Revised CAM is necessary to ensure consistency across the price controls and appropriate having regard to Regulation 13(4) of the Access Regulations.

Urban Commercial footprint as relevant cost basis

6.41 Eircom "partially" agreed that the Urban Commercial Area footprint is the correct footprint to determine FTTC VUA prices, as it has been defined to "*include only those premises that are close enough to the exchange or FTTC cabinet to avail of a FTTC based service, whereas all lines serving premises that cannot receive a FTTC based service are included in the other footprints is correct …*".[428]

6.42 However, Eircom noted that a small percentage of the premises in the Rural Commercial Area footprint were in fact served with EVDSL and that "*the average cost per loop in the Rural Commercial Footprint is substantially higher than a loop of the same length in the Urban Commercial Footprint…ComReg should ensure that the wholesale price enables the cost recovery for all FTTC lines*".[429]

[424] Paragraph 203 of Eircom's Non-Confidential Response dated 8 January 2021.
[425] Paragraph 182 of Eircom's Non-Confidential Response dated 8 January 2021.
[426] However, Eircom also noted this would not apply to the SLU and LLU when used as inputs as those inputs "*should be set based on the costs derived from the corrected ANM*": see paragraph 204 of Eircom's Non-Confidential Response dated 8 January 2021.
[427] https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/
[428] Paragraph 183 of Eircom's Non-Confidential Response dated 8 January 2021.
[429] Paragraph 185 of Eircom's Non-Confidential Response dated 8 January 2021.

6.43 ComReg notes that Eircom has provided no evidence to support its claim that the inclusion of the line costs relating to the small percentage of loops in the Rural Commercial Area footprint used to provide EVDSL would affect the average loop cost that has been derived for the Urban Commercial Area footprint. The Urban Commercial Area footprint under the BU scenario includes exchanges with similar line densities to exchanges in the Rural Commercial Area footprint and ComReg is of the view that cost analysis based on the Urban Commercial Area footprint remains a reasonable approach to cost local loops providing EVDSL services, particularly in light of the fact that any EVDSL service in the Rural Commercial Area footprint would tend to be provided on the shortest loops within that footprint.

Copper loop costs for FTTC Bitstream

6.44 Eircom submitted that the copper loop costs for FTTC Bitstream considered in the Urban Commercial Area footprint must exclude those exchanges that have been identified as being competitive and not subject to SMP defined in the 2018 WLA/WCA Market Review Decision as being collectively in the Urban WCA Market.[430] Eircom stated:

> "*As the costs for SLU and LLU are based on the Urban Commercial Footprint, in the context of FTTC Bitstream prices, the footprint must not contain those exchanges that have been deregulated in the WCA Market and exchanges that have been identified in ComReg 20/114 as no longer being susceptible to ex-ante regulation. Consequently, as currently modelled by ComReg the FTTC Bitstream price is based on the cost of local loops in deregulated areas cross-subsiding regulated areas. This is a material error*."[431]

6.45 Eircom made a related point in response to Question 15, which addressed ComReg's approach to updating prices for FTTC based services, namely:

> "*The ANM model and the NGA model use the same LLU and SLU inputs for the FTTC VUA and FTTC Bitstream prices. This is incorrect… In the case of the FTTC Bitstream, the price control applies only to services in the WCA Regional Market … Part of the cost to eir of delivering this service are the costs of the sub-loops and full loops used to deliver the FTTC and EVDSL bearers to the Bitstream end users in the Regional market. These sub-loops and full loops are those in the Urban Commercial Footprint but only in those regions within the eir exchanges in the WCA Regional Market… If eir is required by the current incorrect implementation of cost orientation to provide Bitstream service in the Regional WCA market at a price that only recovers the average national cost of delivering the service as FTTC services move to FTTC VUA in the urban area and/or FTTC Bitstream prices fall below that*

[430] Paragraphs 199 - 200 of Eircom's Non-Confidential Response dated 8 January 2021.
[431] Paragraph 198 of Eircom's Non-Confidential Response dated 8 January 2021.

average through discounts in the urban area then eir's national FTTC Bitstream Revenues cannot recover eir's national FTTC Bitstream costs".[432]

6.46 However, the 2018 WLA/WCA Market Review Decision defined three markets, one of which was a market for Wholesale Local Access provided at a fixed location (the 'Relevant WLA Market'), which is national in its geographic scope, and includes LLU, SLU, Line Share and VULA products. Consequently, the price control for these products applies on a national basis and, as recognised by Eircom, is intended to recover the national average costs of sub-loops (SLU) and full loops (LLU) in the Urban Commercial Area footprint.

6.47 FTTC VUA is considered to be the anchor service for all FTTC based services, with the result that services such as POTS based FTTC or FTTC Bitstream can only be purchased in combination with FTTC VUA. Consequently, the national average FTTC VUA price is derived on the basis that the same price applies when FTTC VUA is sold in conjunction with an FTTC Bitstream supplement or when it is sold as a standalone service. Therefore, ComReg do not accept Eircom's argument that either the migration of customers from FTTC Bitstream to FTTC VUA or any decision by Eircom to offer discounts on FTTC Bitstream prices in the urban area would result in Eircom being unable to fully recover the costs of all the sub-loops and full loops involved in delivering the FTTC VUA service.

6.48 Indeed, basing the price of the FTTC Bitstream service on the costs of the loops in the Regional WCA exchanges would require that the standalone FTTC VUA price in the Regional WCA exchanges was also based on the same costs, as both services are provided using the same copper loops.

6.49 Furthermore, if over-recovery of national copper loop costs is to be avoided, any increase of the charge for the FTTC VUA element of the FTTC Bitstream service in the Regional WCA Market would need to be offset by a reduction in the charge for FTTC VUA when it is sold in the Urban WCA Market. Consequently, addressing the "material error" highlighted in Eircom's argument would require the deaveraging of the national FTTC VUA price to align with Regional WCA Market and the Urban WCA Market definitions, which, as Eircom notes, may require FTTC VUA prices to be updated again following the WCA Market Mid-Term Assessment.[433]

6.50 In addition, de-averaging of the FTTC VUA price would depend on the costings derived at the individual exchange level under the BU approach in the ANM being sufficiently robust to support deriving sub-national LLU/SLU costs. However, ComReg's primary purpose in developing the BU approach in the ANM was to provide an update to the national FTTC VUA prices determined in the 2018 Pricing

[432] Paragraphs 282 to 284 of Eircom's Non-Confidential Response dated 8 January 2021.

[433] Eircom's desire to update the prices in this manner seems at odds with the position taken elsewhere in its Submission to the ANM that the 2018 Pricing Decision prices should not be updated in response in WACC rates or to reflect the more recent cost analysis in the ANM.

Decision. This is achieved by deriving an appropriate costing of LLU and SLU costs across the Urban Commercial Area footprint that includes all lines that can avail of a viable FTTC service, while recognising that the scorched node approach could mean that the attribution of demand and costs across exchanges under the BU approach will not mirror the distribution of lines and costs in Eircom's legacy exchanges that informs the market analysis. Consequently, an evaluation of LLU and SLU costs for the sub-set of exchanges within the Regional WCA and Urban WCA exchanges within the Urban Commercial Area footprint would not be consistent with the scorched node approach adopted in the BU scenario in the current version of the ANM.

6.51 Given the above, ComReg is satisfied that the national FTTC VUA price is the appropriate input for pricing FTTC Bitstream in both the Regional WCA and Urban WCA Markets and is consistent with the definition of the Relevant WLA Market which is national in its geographic scope.

6.52 Having considered Respondents' submissions, ComReg's final decision is that the prices for LLU and SLU will be set following the pricing approach proposed in the Consultation, reflecting for the modelling changes outlined in Section 0.

6.53 Table 11 and Table 12 show a quantification of the impact of the changes (along with paragraph references to where those changes are explained) from Consultation for LLU and SLU, respectively.

Table 11 Impact of modelling adjustments for the 2020/21 LLU price from Consultation to final Decision

Description	€	Paragraph reference
Consultation	12.72	
Adjustments following the Consultation:		
Service Demand	-0.84	5.114
Opex - Common costs	-0.11	5.434
Opex – Other	0.06	5.431 (b, c)
Capex - E-Side/D-Side copper modelling	0.47	5.635
CEI Changes	0.13	5.369
Other	0.03	
Final modelled price	**12.46**	

Table 12 Impact of modelling adjustments for the 2020/21 SLU price from Consultation to final Decision

Description	€	Paragraph reference
Consultation	10.43	
Adjustments following the Consultation:		
Service Demand	-0.59	5.114
Opex - Common costs	-0.10	5.434
Opex - Usage Factor	0.40	5.526
Opex - Other	0.05	5.431 (b, c)
Capex - E-Side/D-Side copper modelling	-0.27	5.635
CEI changes	0.11	5.369
Other	-0.14	
Final modelled price	**9.89**	

6.3.3 ComReg's final position:

6.54 The prices from the ANM for LLU/ULMP and SLU will be derived based on the Urban Commercial Area footprint (while maintaining the existing BU-LRAIC+ methodology for non-reusable assets and TD FAC for reusable assets as already discussed in Section 3) and set as the maximum price that Eircom can charge for those services.

6.55 The maximum LLU prices (excluding repair) per month for the price control period are set out in Section 7, Table 13.

6.56 The maximum SLU prices per month for the price control period are set out in Section 7, Table 14.

6.4 Pricing approach for Dark Fibre

6.4.1 Position set out in the Consultation

6.57 ComReg was of the preliminary view in the Consultation that the maximum national annual[434] price for Dark Fibre should be based on the costs associated with fibre routes in the access network that are used to support Leased Lines.

6.58 In Section 6.4 of the Consultation, ComReg explained that in circumstances where

[434] ComReg notes that in the Consultation (paragraph 6.58 and Question 12), ComReg referred to a monthly rental charge which was contrary to the rest of Section 6.4 on Dark Fibre (and Table 14 in Section 7) which discussed (and presented) the rental charge as being annual not monthly. ComReg wishes to confirm that the rental charges are annual.

there does not appear to have been significant demand for Dark Fibre to date, basing the costs for Dark Fibre on those cables that are used to support Leased Line access[435] was a reasonable approach given that both Dark Fibre and Leased Lines are point to point services and the potential demand for Dark Fibre is most likely to arise in the same areas as the existing Leased Line demand. Consequently, the fibre costs for Leased Line access can be considered a reasonable proxy of the costs associated with Dark Fibre.

6.59 In terms of the costs associated with the fibre routes in the access network that are used to support Leased Lines, as explained in the Consultation, they include the costs associated with trench, chambers, duct and sub-duct, poles, and fibre cables (including joints). The annual costs in the ANM comprise associated depreciation charges and relevant operating costs, common costs, and process charges (or wholesale specific costs).

6.60 The 2018 WLA/WCA Market Review Decision determined that the pricing of Dark Fibre should be based on a continuation of the prices set out in the 2016 Access Pricing Decision, which adopted a price per metre of fibre approach. This entails dividing the total annual cost of fibre used to support Leased Lines by the associated total length of those fibres in the access network, using assumptions on the average number of fibres per cable and the average utilisation rate of the fibres in the cables over time.

6.61 The total annual cost for fibre includes the costs of the fibre cable plus the associated costs of infrastructure (including trenches, chambers, duct, sub-duct and poles), all of which are sensitive to fibre length. Consequently, ComReg proposed that Dark Fibre should follow a price per metre of fibre approach, as this respects the principle of cost causality, where the per metre length of Dark Fibre refers to the distance between the ingress and egress points that are accessed by the OAO.

6.4.2 Respondents' views and ComReg's assessment

6.62 ComReg received responses from two Respondents, BT and Eircom, to Question 12, on whether the maximum annual[436] charge for Dark Fibre should be based on fibre costs associated with Leased Lines access.

6.63 In summary, BT and Eircom agreed with the approach proposed, but Eircom submitted concerns regarding the use of the WACC rate and the common costs mark-up applied to this service.

[435] Core cables are not included as Dark Fibre is taken to mean "unlit fibre in Eircom's access network".
[436] Ibid footnote 434.

6.64 BT noted the highly limited nature of this service (i.e. where there is no duct capacity available) and acknowledged the pricing approach proposed.[437]

6.65 Eircom agreed that the costs of Dark Fibre should be based on fibre costs associated with Leased Line access and considered it the correct treatment for a number of reasons (e.g. the access requirements).[438] Eircom noted in particular that the ComReg approach "*is likely a better representation of the potential use of Dark Fibre. … leased lines access are a reasonable proxy and basis for price control…*".[439]

6.66 Eircom considered however that a change was required due to the WACC being different when it made the investment and that the tilted annuity that utilised that higher WACC had the effect of deferred revenues because of the price trends in the assets used.[440]

6.67 Eircom also referred to the BRG Report, which maintained that the mark-up for common costs that is applied to services such as Dark Fibre was understated.[441]

6.68 ComReg notes that the issue of WACC change implementation in the ANM is discussed when considering the Capex module in Section 5.8, and the treatment of common costs, including changes to common costs mark-ups are dealt with in Section 5.7 (Opex module).

6.69 Having considered the Respondents' submissions, ComReg is satisfied that the pricing approach for Dark Fibre outlined in Section 6.4 of the Consultation, is reasonable.

6.4.3 ComReg's final position

6.70 The maximum national annual rental charge per metre of Dark Fibre will be based on the costs associated with fibre routes in the access network that are used to support Leased Lines as calculated in the ANM. The rental charge is a blend of TD costs for those CEI assets that can be reused for NGA services and BU-LRAIC+ costs for those assets that cannot be reused for NGA services.

6.71 The final prices for the maximum national annual rental charge for Dark Fibre can be found in Section 7, Table 16.

[437] Page 8 of BT's Non-Confidential Response dated 8 January 2021.
[438] Paragraph 205 of Eircom's Non-Confidential Response dated 8 January 2021.
[439] Paragraphs 206 - 208 of Eircom's Non-Confidential Response dated 8 January 2021.
[440] Paragraph 209 of Eircom's Non-Confidential Response dated 8 January 2021.
[441] Paragraph 210 of Eircom's Non-Confidential Response dated 8 January 2021.

6.5 Pricing approach for CG SABB

6.5.1 Position set out in the Consultation

6.72 ComReg in Section 6.5 of the Consultation was of the preliminary view that the average monthly rental charge for CG SABB should be updated to reflect costs in the exchanges that are part of the Regional WCA Market as well as to provide separate monthly rental prices for Regional and National Handover based on maximum rates.

6.73 As explained in the Consultation, CG SABB uses ADSL[442] or ADSL2 Plus[443] technology to provide a standalone broadband access service that is delivered without a PSTN voice telephony service. Although it is purchased without PSTN, it generally uses the same copper loop that is used to provide PSTN-WLR and the pricing approach allows for the same level of copper access recovery that applies for the PSTN-WLR service.

6.74 The 2016 Access Pricing Decision set the prices for CG SABB "Outside the LEA"[444] on the basis of a TD HCA costing methodology except for Active Assets where the costs are calculated using a BU-LRAIC+ methodology so as to address concerns that Eircom may price excessively for CG SABB services, given that there is little or no alternative infrastructure competition in this area. In the 2018 WLA/WCA Market Review Decision, ComReg (re)imposed an obligation of cost orientation based on a TD HCA costing methodology except for Active Assets where the costs are calculated using a BU-LRAIC+ methodology for CG SABB. However, the Outside the LEA footprint was replaced by those exchanges in the Regional WCA Market reflecting the scope of the regulated market following ComReg's market analysis.

6.75 The cost of the active equipment for CG SABB is the same as the BU port costs derived in the NGN Core Model for CG Bitstream, while the ANM models the costs of the copper loop for CG SABB using the same TD approach as that previously used for PSTN-WLR.[445] This ensures that there is consistency between the pricing approaches for CG SABB, PSTN-WLR and CG Bitstream by recognising the extent that different network components are used in the provision of each service. For example, PSTN-WLR and CG SABB both make similar use of the copper loop and the pricing approaches proposed in the Consultation for both services adopt a TD approach to cost the copper loop, which for the purpose of this Decision is now only applied to CG SABB.

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[442] Asymmetric Digital Subscriber Line.

[443] ADSL2 Plus is the next generation ADSL. It offers high bandwidth using the same copper lines. It can offer up to 24 Mbps but this depends on a number of parameters.

[444] 'Outside the LEA' refers to exchanges in more rural areas of the country. LEA stands for Larger Exchange Areas i.e. those exchanges that are more densely populated.

[445] As per the 2016 Access Pricing Decision.

6.76 As discussed in the Consultation, the ANM analysed TD costs at the exchange level, which for the purpose of CG SABB enabled the ANM to isolate the costs and the service demand in the Regional WCA Market, including the demand for copper services that is used to model the unit cost of the copper loop that was required to provide CG SABB in the Regional WCA Market. This was discussed in the Consultation in the context PSTN-WLR, but applied equally to CG SABB, having derived the average copper loop cost, ComReg considered that it was then necessary to determine prices for copper-based services that are consistent with overall cost recovery.

6.77 Consequently, as described in the Consultation, the pricing approach needed to recognise that there are significant sales of FTTC services which also use the copper loop but are charged for the use of that loop on a different basis (as CG SABB is). The prices for FTTC services were set with reference to the lower costs of the shorter lines that can avail of these services and excludes the higher cost lines that are considered too long to avail of a viable FTTC service. Furthermore, the standalone FTTC service only uses the SLU (i.e. D-Side and final drop) component of the copper loop, which increases the average level of copper costs remaining to be recovered by services such as PSTN-WLR and CG SABB that continue to use the E-side copper cables.

6.78 Consequently, the pricing approach in the Consultation recognised the extent that the level of copper cost recovery embedded in the prices for FTTC based services is lower than the simple average TD copper line cost, in order that Eircom can recover its efficiently incurred costs across the portfolio of wholesale access services it provides in those areas. This was referred to as a "waterbed effect". The greater the extent that the level of copper loop costs recovered in the prices for FTTC based services are below the average loop cost, the greater the waterbed effect that puts upward pressure on prices which are based on the TD costs of the longer than average copper loops used by legacy services such as CG SABB in the Regional WCA Market.

6.79 ComReg in the Consultation explained why it was necessary to consider the proportion of copper-based services that are sold either as standalone FTTC services (using only the SLU component of the local loop) or EVDSL (using the full local loop) or POTS based FTTC services (using a shorter than average LLU component priced on a BU basis) and the average revenues that are generated by these services for the use of the copper access network. The difference between the average local loop costs derived in the ANM and that average revenue can then be applied to the proportion of FTTC services to inform the average costs to be recovered from services using an average TD copper cost such as CG SABB ensure that Eircom recovers all of its copper access costs. In the Consultation, the simplified version of the below formula was presented to illustrate the concept for PSTN-WLR. However, this principle applies to prices which rely on the average TD copper loop

such as CG SABB in the Regional WCA Market.

Average copper loop cost = C

Average FTTC copper revenues = F

Percentage of FTTC services = P

Then average PSTN-WLR copper loop price "W" is derived by:

$$W = C + (C - F) \times \frac{P}{(1 - P)}$$

6.80 ComReg determined in the Consultation that the uplift that was required to apply to the average TD ANM copper loop costs was €0.30.

6.81 In addition to the above, CG Bitstream and CG SABB both use the ADSL port and the pricing approaches for both services adopt the same BU approach to cost the port. However, ComReg proposed in the Consultation, to take account of the 2018 WLA/WCA Market Review Decision, to set the cost of the copper loop for CG SABB in the ANM with reference to the exchanges which are part of the Regional WCA Market.

6.82 Furthermore, separate monthly rental prices for CG SABB were proposed depending on whether the service used Regional or National Handover, in line with the pricing approach for CG Bitstream that was determined in the 2018 Pricing Decision and the traffic-based charges for CG SABB were set to be the same as the equivalent CG Bitstream services (i.e. BMB).

6.83 Applying these costing approaches to price CG SABB and using the regulated WACC of 5.61%, resulted in the average monthly charges (including fault repair and provisioning costs but excluding traffic / usage costs) that were set out for Eircom's 8Mbps and 24Mbps CG SABB services in Section 7 of the Consultation. Eircom offers 8Mbps and 24Mbps where the 24Mbps service was priced at a premium to the 8Mbps service. ComReg was of the view that such an approach is consistent with the price control provided that the average price charged for both services does not exceed the average prices derived in the ANM.

6.5.2 Respondents' views and ComReg's assessment

6.84 Vodafone and Eircom provided responses to Question 13 of the Consultation on whether the maximum monthly rental charge for CG SABB should be updated to reflect costs in the Regional WCA Market, as well as to provide separate monthly rental prices for Regional and National Handover based on the maximum rates.

6.85 In summary, Vodafone and Eircom considered that the costs should be adjusted for the up-to-date Regional WCA Market exchange list (in relation to the WCA Market Mid-term Assessment).[446] Eircom also pointed out aspects with which it sought changes: the WACC rate, asset stranding and its 'voluntary commitments'. Vodafone commented that the costs in the Regional WCA market should be adjusted to take into account up-to-date WCA market data.[447]

6.86 Eircom was in broad agreement with updating the costs underlying CG SABB but added that the model would need to be further updated following ComReg's WCA Market Mid-term Assessment. Eircom also supported the updating of copper costs in the Regional WCA Market for the CG SABB cost stack.[448]

6.87 In relation to the applicable WACC rate Eircom argued that: "*For ComReg to send a signal at the beginning of a price control based on the current WACC and then to use a lower WACC to review prices mid-control is effectively to confiscate a portion of the return considered appropriate when the investment was made during the economic life of the asset. This needs to be corrected for by ComReg*". [449] Expanding on this point, Eircom argued that changing the WACC in the NGN Cost model: "*has the effect of reducing the returns available from NGN active assets when decisions made to extend or refresh the NGN Core early in the price control are affected by a subsequent change by ComReg within the economic life of that asset. This is not a legitimate form of cost modelling for the purpose of setting a price controlled by cost orientation for a new service that requires an investment in a new technology*".[450]

6.88 Eircom also raised concerns regarding asset stranding as customers migrate off the copper-based ADSL service to NGA services before the copper assets costs are fully depreciated, and suggested that a "… *more correct price signal would be to remove the price control by cost orientation and to set a price cap based on movement from the current price level at CPI + 5% so that retail service providers can anticipate the pressure to move the remaining CGA customers to FTTH as soon as possible.*"[451, 452] ComReg's position regarding asset stranding is set out in Section 5.3.

6.89 ComReg agrees, as was proposed in the Consultation, that the list of exchanges making up the Regional WCA Market is that determined by ComReg in the context

[446] Mid-term Assessment Regional Wholesale Central Access (WCA) Market, Re-application of geographic assessment set out in the 2018 Pricing Decision dated 23 November 2020 https://www.comreg.ie/publication/market-3b-mid-term-assessment-consultation
[447] Page 9 of Vodafone's Non-Confidential Response dated 8 January 2021.
[448] Paragraphs 211 - 213 of Eircom's Non-confidential response dated 8 January 2021.
[449] Paragraph 214 of Eircom's Non-Confidential Response dated 8 January 2021
[450] Paragraph 217 of Eircom's Non-Confidential Response dated 8 January 2021.
[451] Paragraph 219 of Eircom's Non-Confidential Response dated 8 January 2021.
[452] Footnote 23 of Eircom's Non-Confidential Response dated 8 January 2021of outlined that for Eircom, CPI "*means the annual percentage change in the CPI from June to June in the year preceding the financial year the price change is proposed to take effect, as published by the Central Statistics Office (Ireland)*."

of the WCA Market Mid-term Assessment. The ANM was updated following adoption by ComReg of the 2021 WCA Market Mid-term Assessment Decision.

6.90 ComReg does not agree with Eircom's position on applying the updated WACC and note that it is not consistent, as noted by Sky, with the EC Comments Letter to ComReg in relation to the 2020 WACC Decision[453] that ComReg should update the WACC in existing price models as soon as possible:

> "*While the Commission welcomes the revision of the WACC value notified under IE/2014/1649, ComReg must adjust all regulated prices that are significantly affected by the WACC value, in line with the considerable decrease of the WACC (from 8.18% (current) to 5.61% (notified) for the fixed-line market). The Commission urges ComReg to update relevant pricing decisions as soon as possible, to ensure that prices in the Irish wholesale markets reflect current market conditions, as the WACC is a significant and central determinant of prices*."

6.91 Also, in referencing the economic life of the asset, Eircom appears to be proposing that, once an investment is made, the same WACC rate has to apply until it is fully depreciated. However, the NGN Core Model is a BU model that derives the costs of deploying an NGN core network today, including the costs of deploying long-lived assets such as the poles and ducts (40-year asset life) and fibre cables (20 year asset life) required to support inter-node connectivity and assets with shorter asset lives, such as NGN core equipment and electronics (4 to 6 year asset life). The BU approach adopted in the NGN Core Model effectively builds the NGN core network each year and the modelled capital value does not reflect the timing of Eircom's actual investments or the depreciated value of Eircom's legacy NGN core network, and therefore it is valid that the applicable WACC rate should change.

6.92 Furthermore, the NGN Core Model models the costs of carrying traffic across the core network and the network expansion that was originally undertaken to support CGA broadband services can also be used to carry NGA traffic. Therefore, NGN Core investments are not dependent on a specific access technology for cost recovery as FTTH traffic can use the same aggregation equipment as CGA or FTTC and so NGN core assets are unlikely to be stranded as traffic migrates from a CGA and FTTC to FTTH (including Modern Interface services or Ethernet Leased Lines). Consequently, updating the WACC in the NGN Core Model to reflect current market conditions is a legitimate approach to cost modelling for the purpose of informing investment decisions in a new technology.

6.93 Regarding Eircom's suggestion that it should be allowed to set prices that would encourage Access Seekers to migrate customers off the remaining CGA services to FTTH as soon as possible, ComReg notes that the purpose of this Decision is to re-

[453] See Annex 5 of the 2020 WACC Decision.

specify the existing price control set in 2018 imposing an obligation of cost orientation, not to revisit the decision to impose an obligation of cost-orientation. In addition and in any event, given the timescale for FTTH deployment in the NBP IA, it is not anticipated that all ADSL customers will have the option to migrate to FTTH immediately, and cost orientation for CG SABB may be required in the interim period. With regards to Eircom's 'voluntary commitments' ComReg's position is set out in Section 6.2.

6.94 Based on the updated ANM cost modelling this copper uplift has been set to €1.86 (compared to €0.30 in the Consultation). The significant increase is mainly driven by changes undertaken in the Opex module to attribute a higher share of repair costs to the longer, more rural lines, as discussed in Section 5.7.2, setting all E-Side usage factors to zero for SLU, as discussed in Section 5.8.2, and to the re-calibration of the Eircom line base by footprint in the Service Demand, as discussed in Section 5.4.2, resulting in lower unit costs for LLU and SLU services.

6.95 In summary, having considered the Respondents' submissions, ComReg remains of the view that the pricing approach for CG SABB, as consulted on in Section 6.5 of the Consultation remains a reasonable basis for determining the maximum prices for CG SABB in the Regional WCA Market. The final charges are based on the updated ANM (including the updated copper uplift) and are also updated to reflect the costs in the exchanges that are part of the Regional WCA Market and updated by the 2021 WCA Market Mid-term Assessment Decision. The cost impact on CG SABB of using the updated list of Regional WCA exchanges, compared to using the list of exchanges from the 2018 WLA/WCA Market Review Decision is, however, immaterial.

6.5.3 ComReg's final position

6.96 The average monthly rental charges for CG SABB are updated to reflect the final ANM (including the updated copper loop uplift) and are also updated to reflect the costs in the exchanges that are part of the Regional WCA Market as set out in the 2021 WCA Market Mid-term Assessment Decision, as well as updated to provide separate monthly rental prices for Regional and National Handover (as maximum rates). The rental charge is a blend of TD costs in the Regional WCA Market for all passive assets (i.e. CEI and access cables), and BU-LRAIC+ costs for the active assets.

6.97 The final prices for CG SABB can be found in Section 7, Table 17.

6.6 Pricing approach for Line Share

6.6.1 Position set out in the Consultation

6.98 In the Consultation, ComReg was of the preliminary view that the monthly rental charge for Line Share should be updated to reflect the latest available cost information which resulted in a proposed charge of no more than €0.62 per month.

6.99 As explained in Section 6.6 of the Consultation, the 2018 WLA/WCA Market Review Decision determined that the price control obligation for Line Share should be based on cost orientation, and that Eircom may recover no more than the incremental costs associated with the provision of Line Share. The current Line Share price of €0.77 a month only applies to lines where different operators provide the line rental with a voice service and the ADSL service. The Line Share price is based on the incremental cost of supporting the ADSL broadband service on the copper line where the costs of that line are already recovered in the PSTN-WLR price.

6.100 In recent years the number of such lines has declined (from circa 20,000 at Q1 2020 to circa 13,000 as at Q2 2021)[454] and service volumes are expected to continue to decline over the price control period. When ADSL was first introduced Eircom had to undertake a programme to remove pair gain systems from those copper lines on which Eircom had previously deployed multi-channel customer carriers to ensure these lines were suitable for broadband. For pricing purposes, the costs associated with this programme were considered as a capital cost that was incremental to the Line Share service. In the Consultation, ComReg estimated that a monthly charge of €0.18 per month (based on the then applicable WACC of 5.61%) was required to contribute to the ongoing recovery of the remaining capital costs.

6.101 The only other costs that were considered to be incremental to the Line Share service were the wholesale costs associated with managing and billing the service. Following an analysis of the carrier administration and billing costs associated with the LLU and Line Share statement within Eircom's HCAs for the year ended 30 June 2019, ComReg estimated in the Consultation that the average cost per services equated to €0.44.

6.102 Combining the capital related cost of €0.18 per month with the wholesale cost of €0.44 per month resulted in an incremental cost for Line Share of €0.62 per month.

[454] https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/

6.6.2 Respondents' views and ComReg's assessment:

6.103 BT and Eircom provided responses to Question 14 of the Consultation on whether the monthly rental charge for Line Share should be updated to reflect the latest available cost information.

6.104 In summary, BT agreed with the proposed update to the price but suggested that the modelling of pair gains removal needed alteration. Eircom disagreed with the proposal to update the price and considered that adjustments should be made to enable cost recovery / avoid asset stranding.

6.105 BT agreed that the monthly rental charge for Line Share should be updated but noted that pair gain systems "*should have been split over all copper broadband services rather than just LLU as all BB other than FTTH would have required this.*" BT also thought that the costs of pair gain removal should have been over recovered by this time and consequently, ComReg should remove this charge from the LLU cost.[455]

6.106 Eircom did not agree that the monthly rental charge for Line Share should be updated and noted that the Line Share price allows for the investment in the removal of customer carriers to be recovered over the regulated life of the copper cable.[456] Eircom also argued that the "*remaining life of the copper loops needs to be reduced to recognise their shorter asset life due to the migration from the copper network to the State funded FTTH network*" and that ComReg's simple update of the WACC "*results in a mathematical error which means that eir's costs will not be recovered.*"[457] Eircom considered that there is no basis in cost analysis to reduce the charge for Line Share and instead that the charges should be capped at the existing €0.77 per month.[458]

6.107 In summary, having considered the Respondents' submissions, ComReg is of the view that the pricing approach as proposed is appropriate but agrees that updating the Line Share modelling to reflect the WACC adjustment raised by Eircom is appropriate.

6.108 In particular, ComReg notes that the most substantial element of the proposed reduction in the Line Share price is related to the lower cost associated with carrier administration and billing. Eircom has restructured its wholesale division in recent years and the associated efficiencies are now being reflected in the updated charges.

6.109 Regarding the costs of customer carrier removal, the fact that these costs were recovered using an asset life of 20 years means that it is not necessarily the case that all the associated costs would have been recovered at this stage. It is also the

[455] Page 9 of BT's Non-Confidential Response dated 8 January 2021.
[456] Paragraph 225 of Eircom's Non-Confidential Response dated 8 January 2021.
[457] Paragraph 226 of Eircom's Non-Confidential Response dated 8 January 2021.
[458] Paragraph 227 of Eircom's Non-Confidential Response dated 8 January 2021.

case that the cost of carrier removal is modelled to be recovered over all copper services and not just over specific LLU/Line Share services. While carrier removal is required to ensure that the copper access network is capable of supporting broadband services, carrier removal programmes were also undertaken when the copper network in an area was being upgraded and older copper cables were replaced with higher capacity cables.

6.110 The charge for carrier removal was calculated by estimating the overall cost of the carrier removal programme and then converting this into a unit cost based on the expected active line base on the copper network. This unit cost was then annualised into present value terms using an asset life of 20 years and the regulated WACC (5.56%).

6.111 In relation to Eircom's argument that the asset life should be shortened due to expected migration from Eircom's copper network to NBI's FTTH network, ComReg does not believe that all customer carrier removal was associated with lines in the NBP IA. Rather ComReg understands that customer carriers were also used to provide services in more urban areas when there were capacity issues with the existing copper cables. Furthermore, any review of the asset lives would need to consider to what extent the costs actually incurred by Eircom in removing customer carriers have been recovered to date.

6.112 ComReg has reviewed the calculations that were originally used to derive the carrier administration charge and identified that the labour rate used to calculate the costs was marked-up to include indirect and common costs. As such, the pay costs were overstated as common costs should not be treated as a capital cost to be recovered over the lifetime of the asset. Adjusting for this over statement reduces by circa [✂ ✂]%[459] the overall amount of costs to be recovered.

6.113 In light of this, ComReg has reassessed the extent to which updated costs of the carrier removal programmes, most of which appear to have been undertaken prior to 2012, have actually been recovered to date. This review suggests that most of the costs have been recovered and that full recovery should be achieved in advance of copper switch-off. Consequently, ComReg finds that a shortening of the asset life is not required.

6.114 As regards Eircom's concern that the approach taken to updating the WACC in the consultation gives rise to a mathematical error, ComReg has revised the calculations to recognise that the change in the WACC rate occurs partly through the asset life. This has resulted in an increase in the annual costs of carrier removal from €0.18 to €0.20.

[459] For the benefit of stakeholders, the range of this reduction is between 25 – 35%.

6.115 Having considered the Respondents' submissions, ComReg remains of the view that the approach to pricing of Line Share, as consulted on in Section 6.6 of the Consultation, with some minor adjustments detailed above, is a reasonable approach.

6.6.3 ComReg's final position

6.116 The monthly price for Line Share will be updated to reflect the latest available cost information resulting in a charge of no more than €0.62 per month. This is the incremental costs per month associated with this service.

6.117 The final prices for Line Share can be found in Section 7, Table 15.

6.7 Implications of model updates on FTTC and CG Bitstream

6.118 Section 6.7 of the Consultation dealt with the implications of model updates on FTTC and CG Bitstream. In this Decision, FTTC is addressed first in Sections 6.7.1 to 6.7.3 and then CG Bitstream is addressed later in 6.7.4 to 6.7.6.

6.7.1 Position set out in the Consultation in respect of FTTC

6.119 As explained in the Consultation, ComReg in the 2018 Pricing Decision used two models to determine prices:

(a) An NGA Cost Model, which primarily models the costs of FTTC/EVDSL specific infrastructure (e.g. FTTC cabinets and DSLAMs); and

(b) An NGN Core Model, which is used to derive the core network cost inputs that are relevant to the provision of FTTC based NGA services (e.g. inter-aggregation link[460] costs for Bitstream and the link costs from the aggregation node to the exchange for VUA).

6.120 The costs of equipment specific to FTTC based services, such as cabinets and DSLAMs, were derived in the NGA Cost Model while the costs associated with the backhaul for FTTC related demand to local aggregation nodes, and from the aggregation nodes to the regional and national handover points, were calculated in the NGN Core Model. In addition, the costs associated with the access network underpinning the LLU and SLU services (i.e. the full local loop and the segment of the full local loop between the cabinet and customer), which are the relevant cost inputs for the provision of FTTC based services, including the costs of the NGA link (i.e. the fibre connecting the FTTC cabinet to the exchange), were derived in the Revised CAM.

[460] This includes the link between Local VUA and Remote VUA.

6.121 ComReg considered, in the Consultation, the possible impact of changes to the relevant network cost inputs on FTTC based services, as a result of the modelling undertaken in the ANM. ComReg's preliminary view was that when the impact of the ANM update (LLU, SLU and NGA Link cost inputs as modelled in the ANM) is combined with the application of the applicable WACC rate to all relevant cost models, the reduction in modelled FTTC rental prices is significant and warrants a revision of the prices determined under the 2018 Pricing Decision.

6.122 In reaching its preliminary view, ComReg noted that the LLU and SLU costs derived in the ANM were slightly higher than the equivalent costs that were derived in the Revised CAM to inform the 2018 Pricing Decision. However, the fact that the ANM derived the costs of the SLU and LLU inputs with reference to the line base required to serve all those premises that are capable of receiving a viable FTTC/EVDSL service from Eircom meant that the basis for deriving the LLU and SLU costs to cost FTTC based services was more robust than the assumptions that were in the Revised CAM (regarding maximum line lengths of 3km for LLU and 1.5km for SLU) when deriving the costs for the 2018 Pricing Decision.

6.123 ComReg also noted that accordingly, absent any change to the WACC rates, updating the NGA Cost Model with the revised cost inputs from the ANM led to an increase in the modelled costs of FTTC based VUA rental across the price control period.

6.124 However, in the 2018 Pricing Decision, ComReg had reserved the right to require prices to be updated depending on the outcome of any decision that would be taken on the WACC rate and in October 2020, ComReg adopted the 2020 WACC Decision providing for a new WACC rate and annual updates. Applying the lower WACC rate of 5.61% set in the 2020 WACC Decision reduced the costs modelled in the ANM for the LLU, SLU and the NGA Link inputs into the NGA Cost Model.

6.125 As the WACC rate is also a modelling parameter in both the NGA Cost Model and the NGN Core Model, revising the WACC rate from 8.18% to 5.61% (as at the time of the Consultation) in both these models further reduced the costs modelled for FTTC based services with consequent reductions in the modelled prices.

6.126 ComReg recognised that there are other parameters and inputs that inform the costs modelled in both the NGA Cost Model and the NGN Core Model. Nonetheless, ComReg did not propose to revisit any of these other parameters or model inputs. The reason was that both the NGA Cost Model and the NGN Core Model in the 2018 Pricing Decision are BU models where the costs are based on those of an HEO with a recently deployed network that is assumed to have Eircom's scale and market share. This means that the HEO's operating costs are not the same as the operating costs in a TD model, which more closely relate to the costs Eircom incurred in operating its legacy networks. Consequently, changes in Eircom's reported TD costs

do not necessarily require corresponding adjustments to the HEO costs in a BU model.

6.127 Furthermore, as detailed in the Consultation, the NGA Cost Model applied an Economic Depreciation ('**ED**') approach to cost modelling, which considered demand and costs across a time horizon of 50 years. The ED approach was consistent with the approach taken by ComReg in the NGA Cost Model to model VDSL as an anchor technology, with the result that VDSL based services, such as FTTC, were modelled as remaining active for the entire 50-year period of the model's time horizon. As stated in paragraph A1.27 of the 2018 Pricing Decision, "… *because VDSL is being considered as an anchor technology, ComReg assumes that Eircom will not overlay its FTTC network with FTTH in the future, so the NGA Cost Model does not include migration from FTTC to Eircom's FTTH*."

6.128 Consequently, the HEO in the NGA Cost Model was assumed to continue to deploy VDSL specific assets such as FTTC cabinets and DSLAMs over the 50-year time horizon and the demand for the VDSL services that use those assets is also assumed to persist for that period.[461]

6.129 ComReg considered that the general demand and costs assumptions that were used in the NGA Cost Model and NGN Core Model for the 2018 Pricing Decision continue to be consistent with the HEO approach adopted in both models and consequently did not need to be updated. Therefore, ComReg was of the view that it was only necessary to revise the ANM input costs into the NGA Cost Model and the WACC parameter in both models, as all the other modelling assumptions on demand and costs remained appropriate.

6.7.2 Respondents' views and ComReg's assessment

6.130 Five Respondents replied to Question 15 in relation to the proposed amendment to the prices for FTTC, namely: ALTO; BT; Sky; Vodafone; and Eircom. In summary, Respondents disagreed with the preliminary view from ComReg principally around the extent of the update to the NGA Cost Model.

6.131 Eircom disagreed with the proposals on the basis that the proposed prices were a deterrent to full fibre migration and discouraged further fibre investment, which it argued was inconsistent with EC recommendations. Eircom pointed to its proposed 'voluntary commitments' on FTTC prices as an alternative to ComReg's proposed cost-oriented prices.[462] Eircom was of the view that the NGA modelling approach of an anchor technology approach was no longer suitable and the proposals to update the WACC failed to respect a 'fair bet' principle.

[461] Further information on the anchor technology approach can be found in paragraphs 6.60 and 6.131 of the 2018 Pricing Decision.
[462] ComReg's position on Eircom's 'voluntary commitments' is set out in Section 6.2.

6.132 Other Respondents argued that, as well as updating for the LLU, SLU and NGA Link cost inputs and the revised WACC, ComReg should consider other factors when updating the NGA Cost model and the NGN Core model.

6.133 In summary, having considered the Respondents' submissions, ComReg is of the view that the updates to the NGA Cost Model (and the NGN Core Model) should be confined to the updated cost inputs from the ANM (LLU, SLU and NGA link) and the relevant WACC.

6.134 ComReg's consideration of the issues raised by Respondents and ComReg's final position are set out below under the relevant subheadings.

6.135 As part of this Decision, ComReg requested from TERA Consultants a review of the submissions received from Respondents in relation to the approach for updating the NGA Cost Model and the NGN Core Model and for amending the prices for FTTC taken by ComReg in the Consultation. TERA's note with its assessment is published alongside this Decision. TERA identified four key issues: the anchor technology approach; demand data consistency; Opex data in use; and the new WACC. TERA Consultants' conclusion is that ComReg's approach as discussed below and as shared with TERA is reasonable.

NGA cost modelling and the anchor technology approach

6.136 Eircom's submission was based on Eircom's understanding that "*ComReg has assumed that the hypothetically efficient operator is a new entrant to the market (in order to set appropriate build/buy signals).*" Eircom noted that *"At a conceptual level a new hypothetical efficient entrant is unlikely to deploy an FTTC network, at this time, given that the advent of FTTH technology will quickly make its investment obsolete*".[463] Furthermore, according to Eircom, "*ComReg's hypothetical new entrant further diverges from reality in that the operator deploys both a new FTTC network and then simultaneously cannibalises and scraps the new deployed copper element of this network with a new FTTH investment*".

6.137 In that context, Eircom considered that ComReg's FTTC approach was incorrect as it "*does not make sense to model a HEO rolling out a FTTC network given the fact that FTTH is being deployed at the same time*."[464] The BRG Report elaborated that such a rollout would be "*hardly likely*", and considered that ComReg was inconsistent as it does "*not consider that deploying FTTH would inevitably shorten the life of copper and FTTC assets, which would be obsolete once FTTH is deployed …*".[465] The inconsistency would be reflected in ComReg's modelling assumptions as the ANM Service Demand module completes copper switch-off by 2030, whereas the

[463] Paragraph 269 of Eircom's Non-Confidential Response dated 8 January 2021.
[464] Paragraph 231 of Eircom's Non-Confidential Response dated 8 January 2021.
[465] Paragraph 232 of Eircom's Non-Confidential Response dated 8 January 2021.

NGA Cost Model assumes an FTTC connection with an asset life of 20 years. Eircom suggested that the migration costs in the NGA Cost Model should fall to seven years for new migrations and should be no more than seven years for existing services as the new entrant will have already started upgrading to FTTH within that time period.[466]

6.138 Eircom further submitted that a "*regulatory policy incentivising the migration from copper-based services … is needed from ComReg*" and referenced paragraph 40 of the 2013 EC Recommendation which in Eircom's view "*provides that any intervention in NGA costing (which ComReg has done for FTTC pursuant to ComReg D11/18) "should be accompanied by documented projections of copper network prices showing that … they will remain stable"*". Eircom added that it is inefficient to invest in and operate two networks when one network could serve all customers[467] and submitted that the NGA Cost Model is no longer sufficient and needs to be updated for the rollout of FTTH.[468] Eircom further considered that certain aspects of the NGA Cost Model may not be following the 2013 EC Recommendation – particularly the 50-year time horizon for modelling FTTC costs, and the average connection cost being modelled over 20 years. Eircom noted that a "*recent Ofcom approach while still recognising an anchor technology approach to FTTC specifically recognises that some assets could become redundant due to the introduction of new technologies and adjustment to the asset lives in the BU model should be made to reflect faster depreciation of the underlying network assets*," in effect suggesting that adequate account needs to be taken of technological change and asset stranding in the NGA Cost Model.[469]

6.139 However, Eircom's understanding that ComReg has assumed that the modelled HEO is a new entrant to the market is not correct. Rather, the NGA Cost Model is concerned with an established operator with Eircom's market share and network footprint, that started to deploy FTTC infrastructure and offer FTTC services at the same time and in the same locations as Eircom. For that purpose, ComReg adopted a Bottom-up approach to model the costs of active equipment, which is consistent with the 2013 EC Recommendation.

6.140 ComReg remains of the view that the anchor technology approach adopted in the 2018 Pricing Decision to model FTTC costs continues to be appropriate even though Eircom has started to overlay FTTC with FTTH in the Urban Commercial Area footprint. Indeed, ComReg previously acknowledged in the 2018 Pricing Decision that, although "*the NGA Cost Model considers VDSL as an anchor technology and so VDSL demand is assumed to exist into the last year of the 50 year model timeframe…, this does not imply that Eircom is prevented from investing in alternative*

[466] Paragraphs 274 and 275 of Eircom's Non-Confidential Response dated 8 January 2021.
[467] Paragraph 265 of Eircom's Non-Confidential Response dated 8 January 2021.
[468] Paragraphs 266 and 268 of Eircom's Non-Confidential Response dated 8 January 2021.
[469] Paragraph 267 of Eircom's Non-Confidential Response dated 8 January 2021.

technologies such as FTTH in this period."[470] The fact that Eircom has now started to deploy FTTH in urban areas does mean that the cost modelled in both the NGA Cost Model and NGN Core Model can now be expected to diverge from the costs recorded in Eircom's actual accounts as FTTH supplants FTTC as the main NGA technology.

6.141 In any event, as discussed in paragraphs 5.113 on Service Demand modelling (Section 5.4), ComReg has modified the Bottom-up approach of the Service Demand module, so that it is now following the same anchor technology approach as used in the NGA Cost Model (the 'FTTC Anchor approach'). Under this approach there is no longer a simultaneous deployment of FTTH and FTTC in the Urban Commercial Area footprint in the ANM with the result that the HEO's NGA demand continues to be supported on a copper network using VDSL rather than on fibre with FTTH. The fact that the ANM models a newly deployed copper network at current costs is consistent with paragraph 39 of the 2013 EC Recommendation, which recognises that: "*Modelling a single efficient NGA network for copper and NGA access products neutralises the inflationary volume effect that arises when modelling a copper network, where fixed network costs are distributed over a decreasing number of active copper lines*."

Cost model updates

6.142 ALTO, BT, Vodafone and Sky sought that ComReg make more widescale changes to the data underpinning the NGA Cost Model and NGN Core Model beyond the key inputs that ComReg proposed to update (namely, the WACC rate, and the LLU/SLU and NGA Links inputs from the ANM).

6.143 ALTO noted that ComReg's proposed update of the NGA and NGN models "*is not taking into account higher than expected demand and levels of efficiency on costs*",[471] while BT consider that "*using old data risk overstating Eircom's costs*".[472]

6.144 Vodafone also submitted that "*it is completely appropriate to adapt models to take into account fundamental market changes. It is necessary to reflect accurate demand, changes in investment priorities reducing the need for FTTC specific capex requirements (cabinets, DSLAMs etc.) and changes in opex costs such as power, accommodation etc…. Our analysis indicates the changes to demand and capex alone would remove a further €1 from the monthly rental charge. This over recovery of cost does not align with ComReg objectives and is relatively simple to action*." The Frontier Economics Report (as part of Vodafone's submission) argued that "*new information and changes in the market since the last repopulation of the models*

[470] 2018 Pricing Decision, paragraph 6.131.
[471] Paragraph 2.4 of ALTO's Non-Confidential Response dated 8 January 2021.
[472] Page 9 of BT's Non-Confidential Response dated 8 January 2021.

means that the historic Eircom data is no longer suitable for the basis of generating forecasts of efficient demand and costs."[473]

6.145 Sky also argued that the costs in the NGA and NGN models should be updated to reflect the latest available information and noted that "*as a consequence of the 2015/16 HCA's being the "starting point" for setting operating costs in the NGA Model, ComReg/TERA "sense-checked" that data against the most recently available data just prior to finalising D11/18… ComReg in justifying its current proposal makes no mention of "sense-checking" and instead offers a pre-emptive argument for not carrying out such an exercise by suggesting the costs in the NGA cost model are based on a HEO and imply such an exercise is thus, unnecessary*".[474]

6.146 Sky was also concerned that TERA had made significant efficiency adjustments to the operating costs used in the Revised CAM, as the BU Scenario considered a recently deployed copper cable network, and in the NGN Core Model, which included efficiency adjustments on the assumption that a HEO with a fully enabled NGN Core would incur lower operating costs than Eircom's core network (which still included older legacy systems). However, TERA did not make similar efficiency adjustments to the operating costs used in the NGA Cost Model on the basis that, in 2016, Eircom's FTTC/EVDSL network could be considered to be a recently deployed network, which meant that Eircom's operating costs could be used as a proxy for a HEO. According to Sky, "*If Eircom's unit operating costs are declining significantly since 2016, and there is strong evidence to suggest this is the case, then TERA's conclusion on there being no need to revisit these costs is simply wrong… Eircom are today a significantly more efficient operator than the hypothetically efficient one depicted in the NGA Model*."[475]

6.147 The Frontier Economics Report (on behalf of Vodafone) suggested also that the overstatement of operating costs in the NGA Cost Model relative to Eircom's accounts "*is highlighted by data from Eircom's most recent Regulatory Financial Statements, where the estimated NGA rental cost per line on a HCA basis was €14.86 per month in 2020, significantly lower than ComReg's proposed price for the FTTC VUA service of €18.67 in 2021.*"[476]

6.148 However, ComReg remains of the view that further updates to the NGA Cost Model and NGN Core Model are not appropriate at this stage. ComReg notes that both models were finalised as part of the 2018 Pricing Decision and use a BU approach to derive the network asset costs that a HEO would deploy in providing NGA services in Ireland. The efficient level of operating costs that are modelled to be consistent

[473] Section 3.1, page 26 of the Frontier Economics Report dated 8 January 2021.
[474] Paragraphs 92 to 96 of Sky's Non-Confidential Response dated 8 January 2021.
[475] Paragraphs 88 to 91 of Sky's Non-Confidential Response dated 8 January 2021.
[476] Section 4, page 31 of the Frontier Economics Report dated 8 January 2021.

with this HEO approach were derived following an analysis of the cost in Eircom's Separated Accounts.

6.149 ComReg does not consider on the evidence that declines in Eircom's unit costs are as significant as Sky and Frontier Economics suggest. For example, the average cost that Frontier Economics refers to is not representative of the full costs of VUA, as is indicated by the fact that the equivalent average revenue for NGA rental is listed as €16.93,[477] which is lower than the FTTC VUA price in the year ended June 2020 of €19.79. Not all VUA related costs and revenues are reported in the Wholesale Broadband Access statement as the copper related costs/revenues of providing a POTS based FTTC service are still reported in the Wholesale Narrowband Access statement.[478]

6.150 It is also the case that the cost reductions that are evident in Eircom's HCA accounts do not necessarily imply that similar reductions can be applied to the NGA Cost Model. Both the Analysys Mason Report (on behalf of Sky) and the Frontier Economics Report highlight the cost savings in Eircom accounts and the impact of restructuring and cost transformation programmes that Eircom have implemented in recent years. For example, the Frontier Economics Report notes that "*according to Eircom's Regulatory Financial Statements, Eircom's Repair and Maintenance operating costs alone have fallen by approximately 20% between 2016 to 2020 (from €68 million to €56 million). This suggests that either Eircom's costs in 2016 were at an inefficient level or that the efficiency frontier has shifted considerably since 2016*."[479]

6.151 However, Eircom has also noted that "*in FY16 Ireland had a significant windstorm season and was the most active to date leading to particular high opex in that year. The season was especially notable for the amount of rainfall that caused flooding. Given that climate models show that, with climate change, the planet is likely to experience more extreme weather in the future it would be reasonable to expect a repeat (or worse) of the FY16 windstorm season also in the future*".[480]

6.152 The impact of severe weather events on Repair and Maintenance ('**R&M**') costs is evident in the fact that R&M costs reported in Eircom's Separated Accounts also fell between 2016 and 2017, then increased significantly in 2018 (due to a number of severe weather events), before declining again in 2019 and 2020. Consequently, a significant element of the observed reduction between 2016 and 2020 can be

[477] Page 15 of Eircom's HCAs FY2019/20, Statement of Average Cost and Revenue by Service for Wholesale Broadband Access.

[478] It is also notable that the 2019 Restated NGA Rental figures show an average cost of €14.83 and average revenue of €12.85. Billing issues meant that Eircom now report some of the usage revenues as part of NGA Rental, so any assessment of NGA returns now needs to consider both rental and usage costs and revenues together.

[479] Section 3.1, page 28 of the Frontier Economics Report dated 8 January 2021.

[480] Paragraph 89 of Eircom's Non-Confidential Response dated 8 January 2021.

understood as a reduction in line related repair costs due to the lower level of line faults experienced in 2020 compared to 2016.

6.153 In contrast, there is a significant increase between 2016 and 2020 in the direct costs for the specific R&M activity associated with DSLAM equipment in cabinets and exchanges that is much greater than the increase in the number of DSLAMs. This indicates that FTTC related costs are not declining by anything like the extent suggested by the overall decreases in operational/technical staff numbers reported in the accounts covering the same period as highlighted by Analysys Mason.

6.154 In fact, a comparison conducted by ComReg of the main FTTC/EVDSL related operating costs reported in the 2016 and 2020 accounts indicates no significant change in the overall level of costs relevant to the NGA Cost Model, with increases in some categories (FTTC/EVDSL equipment related R&M and power) offset by decreases in others (FTTC/EVDSL related network management and line related R&M). The level of FTTC/EVDSL related common costs is also comparable in both year's HCAs.[481] Consequently, ComReg remains of the view that the operating costs data extracted from Eircom's 2016 accounts can still be considered as representative of an HEO operating a recently deployed FTTC network, which is assumed to operate in perpetuity.

6.155 ComReg is also mindful of the fact that, even if there was evidence of more material reductions in operating costs, it might not always be desirable to constantly update the cost models to align with the latest cost data. ComReg's primary intention in setting cost-oriented prices for FTTC in the 2018 Pricing Decision was to better inform build/buy decisions for NGA operators rather than ensuring precise cost recovery for Eircom.

6.156 As noted by Respondents, Eircom has implemented cost reduction programmes in recent years and ComReg accepts that this could result in Eircom reaching a level of efficiency over and above that factored into the HEO assumptions adopted in the NGA Cost Model and the NGN Core Model. Nonetheless, regulated SMP operators should not be discouraged from seeking greater efficiencies, and there is a risk that frequently updating cost models to track every cost saving as it becomes evident in the accounts can act as a disincentive to the regulated operator from pursuing such savings. Indeed, Regulators that set wholesale price-cap regimes tend to allow the regulated operator to retain any excess returns generated during the period of the

[481] The Analysys Mason Report asserts that "*no attempt has been made to check whether the EUR10 million plus EUR3.7 million of common costs sourced from FY2016 Eircom is not being double counted with the EUR38 million included in the ANM*" (Section 3.5.5, page 45). However, the costs in the NGA Cost Model are based on different Network Elements than those relevant to the ANM.

price control, which effectively incentivises the operator to achieve efficiencies over and above those factored into the price control.[482]

6.157 In addition to updating the operating costs in the NGA Cost Model, Frontier Economics also suggested that the capital costs should be updated "*to adjust the assumption regarding future FTTC-specific capex to reflect the expectation that assets will not be replaced on an ongoing basis, but rather would not be replaced given the transition to FTTH technologies.*"[483] Eircom makes a related argument that the asset lives for FTTC connections should be shortened from 20 years to 7 years in the NGA Cost Model to be consistent with the prospect that FTTH deployment will lead to copper switch-off.[484]

6.158 To support the need for such updates, Frontier Economics refers to the example of the Danish Business Authority that annually updates the cost models used to set the wholesale prices for the incumbent operator "*to reflect the latest information (including an updated WACC), with no update made to the cost modelling methodology compared to its previous pricing decision*".[485] However, while it might be possible to update the annual costs in the Danish Business Authority's cost models without changing the methodology, updating the NGA Cost Model in the manner suggested by Frontier Economics and Eircom would require a significant change to the cost methodology adopted in the 2018 Pricing Decision, as such updates would not be consistent with the Economic Depreciation approach adopted in the NGA Cost Model, which modelled the network costs and demand of an HEO over a 50 year horizon.

6.159 Eircom refers to Ofcom's 2018 WLA Market Review to support its argument of shortening asset lives, where, despite maintaining an anchor technology approach to FTTC, Ofcom "*specifically recognises that some assets could become redundant due to the introduction of new technologies and that adjustment to the asset lives in the BU model should be made to reflect the faster depreciation of the underlying network assets.*"[486] However, Ofcom has made these adjustments in a BU model that uses CCA Depreciation rather than Economic Depreciation, and Ofcom recognises that "*There is a risk when using CCA depreciation that costs are unstable*

[482] For example Ofcom addressed this in its 2018 Wholesale Local Access Market Review: Statement – Volume 2, Charge control design and implementation, paragraph 2.10 – 2.13, available here: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/112487/wla-statement-vol-2.pdf

[483] Section 4, page 32 of the Frontier Economics Report dated 8 January 2021.

[484] Paragraph 275 of Eircom's Non-Confidential Response dated 8 January 2021.

[485] Section 3.1, pages 29 to 30 of the Frontier Economics Report dated 8 January 2021.

[486] Paragraph 267 of Eircom's Non-Confidential Response dated 8 January 2021.

because of volume changes or spikes in capex due to where we are in the investment cycle."[487]

6.160 This risk arises because, under a CCA Depreciation approach, the asset life determines the timing of cost recovery. However, the timing of cost recovery of asset investments under the Economic Depreciation approach used in the NGA Cost Model is not dependent on the asset lives. As noted in the 2018 Pricing Decision, ComReg adopted a depreciation period of 50 years in the NGA Cost Model to avoid investment cycle effects, by recognising that the revenue required to finance asset cost recovery is dependent on the level of output generated by the asset while that output is, in turn, dependent on the demand for the services supported by the asset. Therefore, the investment cycles and demand forecasts in the NGA Cost Model are based on the assumption that no FTTH overlay of the FTTC footprint would occur and, as discussed in Section 5.4 on Service Demand, similar assumptions have now been included in the ANM (briefly, the FTTC Anchor approach in the ANM assumes no overlay of copper with FTTH by Eircom in the Urban Commercial Area footprint).[488]

6.161 As a result, "sweating" FTTC assets, in the manner suggested by Frontier Economics, or shortening asset lives as suggested by Eircom, could not be implemented in the NGA Cost Model without revisiting the Economic Depreciation approach. Economic Depreciation recognises that cost recovery is dependent on demand, whereas a straight-line depreciation approach, similar to that used in a CCA Depreciation based model or the HCA Depreciation used in Eircom's accounts, will mean that the operator will record losses in the early years after network deployment when demand on the new network is low, but these recorded losses can be offset by the higher returns made as demand matures and recorded profits improve.

6.162 This pattern of cost recovery is becoming evident in Eircom's HCAs, which has recorded returns below the regulated WACC until 2018, but, since then, is recording positive returns, that should, in future years, be sufficient to offset the accumulated losses recorded to date. Therefore, the updates of the cost oriented FTTC prices derived in the NGA Cost Model are intended to allow adequate remuneration for the SMP operator as required by the 2013 EC Recommendation by maintaining an

[487] Ofcom (2018), Wholesale Local Access Market Review: Statement – Volume 2, Charge control design and implementation, paragraph 2.34, available here: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/112487/wla-statement-vol-2.pdf

[488] The Frontier Economics Report dated 8 January 2021 also argues that the forecast of FTTC demand in the NGA Cost model is understated compared with actual FTTC demand for 2019 that is used in the ANM. However, the ANM categorises FTTC and EVDSL as FTTC, and Frontier Economics are comparing this combined FTTC demand in the ANM with the FTTC demand excluding EVDSL in the NGA Cost Model. Consequently, the variance identified by Frontier Economics is significantly overstated. Furthermore, the FTTC Anchor approach in the ANM now means that the demand in the ANM that is used to derive the LLU/SLU costs for FTTC/EVDSL is reasonably aligned with the equivalent demand in the NGA Cost Model. See subsection on Service Demand for more detail (paragraphs 5.111 to 5.113 including Table 8).

investment cycle consistent with the original asset lives on the basis that FTTC remains an anchor technology for the lifetime of the NGA Cost model.

Respecting the 'fair bet' principle and updates of the WACC

6.163 Eircom submits that ComReg, in revisiting the pricing remedies so quickly after implementing its Decision only serves to create regulatory uncertainty for infrastructure-based providers.[489] Eircom suggests that ComReg should focus its regulatory approach on encouraging new networks – to "*supercharge full fibre investment*", and "*should aim to allow all companies to achieve a fair return over their whole investment period*" rather than interventions focussed on the short term that discourages investment incentives of those building faster networks.[490]

6.164 According to Eircom, ComReg should respect a "*fair bet principle*" in allowing Eircom the opportunity to make higher returns on successful investments to compensate for risk, and ComReg's reference to its reserving the right to update prices in the 2018 Pricing Decision does not constitute sufficient reasoning, and this statement is in any event outweighed by ComReg's obligations related to ensuring regulatory predictability between reviews.[491] Eircom contends that FTTC has only recently become profitable and the fair bet principle was broken by ComReg introducing cost orientation on FTTC in 2018, with the breakeven point for FTTC investment being pushed out.[492] Eircom submits, on the basis of its FTTC returns to date, that "*even before a risk premium is considered…eir has yet to make a return on this investment*",[493] after applying a WACC of 10.21% to all the MCE for every year since 2012, the year Eircom first started to invest in FTTC (even though the regulated WACC rate changed in 2014 from 10.21% to 8.18%). This approach, Eircom argues, is consistent with the 'fair bet' principle,[494] which Eircom previously raised as part of the 2018 Pricing Decision.

6.165 For the avoidance of doubt, ComReg did not agree to such a 'principle' in relation to setting the price control obligation of cost orientation on FTTC in the 2018 Pricing Decision. As explained in paragraph 3.116 of the 2018 Pricing Decision which articulated ComReg's rebuttal and final position on that 'principle':

> "…*a consideration of fair bet is principally about assessing risk, and is an ex*

[489] Paragraph 252 of Eircom's Non-Confidential Response dated 8 January 2021.
[490] Paragraphs 254 and 255 of Eircom's Non-Confidential Response dated 8 January 2021.
[491] Paragraph 247 of Eircom's Non-Confidential Response dated 8 January 2021.
[492] Paragraph 248 of Eircom's Non-Confidential Response dated 8 January 2021.
[493] Paragraph 264 of Eircom's Non-Confidential Response dated 8 January 2021.
[494] Eircom previously raised this concept of a 'fair bet' in the 2018 Pricing Decision where ComReg moved the price control obligation on FTTC from one based on margin squeeze to one based on cost orientation. Eircom's contention as explained in paragraph 3.86 of the 2018 Pricing Decision, and summarised here, was that the movement to cost orientation was being applied earlier in the investment cycle than elsewhere in Europe and doing so would chill investment by all infrastructure providers, and that to allow Eircom a fair bet, no cost based regulation should be imposed.

ante assessment whereby an investor can decide if the investment risk is worth taking. ComReg notes also that the 2010 NGA Recommendation stated that the investment risk for FTTC is significantly lower than that for FTTH.[59] In concluding that cost orientation is required for FTTC based services, ComReg notes that the regulated access price includes a reasonable rate of return or weighted average cost of capital ('WACC') that takes into account the risk of investing in these kind of assets.[60] ComReg considers that its approach to price controls in the WLA market and in the Regional WCA Market has balanced measures to encourage infrastructure investment with measures to ensure that prices for Access Seekers are reasonable, and notes that the use of the BU-LRAIC+ costing methodology (discussed at Chapter 5 of this Decision) should set the right balance between ensuring return on investment and setting the correct build or buy signals. As a consequence, efficient infrastructure deployment can be profitable (from the SMP operator's or from an alternative players' perspective) in the presence of this price constraint. Therefore, ComReg does not consider that cost orientation will undermine investment in NGA networks. The ultimate goal is to ensure that end users benefit from increased choice and fair prices.

Footnote 59: See discussion of risk premium in the TERA Report, dated 7 April 2017, which accompanied the Consultation.

Footnote 60: Please note that ComReg plans to review the WACC rate, with a consultation planned for Q1 2019. ComReg reserves the right to require prices to be updated depending on the outcome of any decision ComReg may take on the WACC rate as a result of that consultation process."

6.166 Eircom also fails to mention that only a sub-set of the MCE in the FTTC statement relates to FTTC specific investments (DSLAMs, cabinets, etc.) that Eircom would have invested in post-2012, as distinct from assets such as ducts, poles, copper cables, core transmission links, exchange buildings, etc. that Eircom would have invested in regardless of the decision to opt for FTTC. However, ComReg disagrees that even for that sub-set of FTTC specific investment the 'fair bet' principle is a relevant consideration, as previously outlined in the 2018 Pricing Decision (see above), the related 2018 WLA/WCA Market Review Decision[495] and covered also in the 2020 WACC Decision.[496]

6.167 Eircom's analysis also ignores the fact that that a significant benefit of FTTC deployment was that it helped Eircom's copper access services to retain market share against the competition from broadband services from rival cable networks, and that significant revenues and costs for FTTC related voice services are reported in the Narrowband Statement, where reported returns have been in excess of the regulated WACC throughout this period. ComReg also notes that, when the

[495] See paragraphs 7.1332 and 12.304 of the 2018 WLA / WCA Market Review Decision.
[496] Paragraphs 7.34 to 7.53 of the 2020 WACC Decision.

regulated WACC of 8.18% is applied from FY 2014 to Eircom's analysis, the cumulative losses to date in the FTTC Broadband statement are reduced, with the result that Eircom is on track to attaining an appropriate return on its FTTC investments over the economic life of the assets that is consistent with the relevant regulated WACC.

6.168 Eircom also noted concerns with the implementation of the annual WACC updates for investments based on a tilted annuity or economic depreciation. Eircom considered that in applying the new WACC rate ComReg is "*in effect resetting that path afresh each year*", with the result that it confuses the time horizons of the notional investor and the expected life of the assets employed. Eircom considered that the impact of a reduction of WACC would result in an under-recovery of the initial investment.

6.169 ComReg notes that on this point (as already noted elsewhere paragraphs 6.127 to 6.129 and 6.136 to 6.140) the primary concern of using an anchor technology approach (via the FTTC Anchor approach) with an economic depreciation method over a 50-year time horizon is to set correct build/buy price signals for prospective investment and not to ensure exact cost recovery for investments that have already occurred. However, ComReg notes that these considerations are relevant where ensuring cost recovery is a higher priority. Hence ComReg has modified the modelling of the Capex amortisation of CEI Capex costs to allow Eircom to continue to recover its efficiently incurred costs even after changes in the WACC (see paragraph 5.350).

6.170 For the above reasons, and as already stated in paragraph 6.90, ComReg does not agree with Eircom's concerns with applying the updated WACC and is satisfied that doing so is consistent with the EC Comments Letter to ComReg in relation to the 2020 WACC Decision[497] that it should update the WACC in existing price models as soon as possible.

Copper costs for FTTC Bitstream prices

6.171 Eircom cross-referring to its response to Question 11, considered that ComReg, in light of the deregulation of the Urban WCA Market, incorrectly included lower loop costs from the Urban Commercial Area footprint in calculating the average loop costs for FTTC Bitstream, and submitted that the upcoming final decision in relation to the WCA Market Mid-term Assessment should be applied. Eircom also noted that a similar correction is required for the Regional WCA exchanges in the NGA Cost

[497] See Annex 5 of the 2020 WACC Decision.

Model to calculate the additional WEIL[498] and backhaul costs for those remaining Regional WCA exchanges in the Urban Commercial Area footprint.[499]

6.172 Eircom considered that ComReg should reconsult on the ANM outputs based on the smaller footprint of the WCA exchanges of relevance for the cost model.[500]

6.173 ComReg disagrees with Eircom's observations in relation to FTTC Bitstream prices being 'incorrectly calculated'. This was already raised by Eircom in reply to Question 11. ComReg's reasons for rejecting Eircom's views is set out in paragraphs 6.44 to 6.51. ComReg updated the NGN Core Model for the updated list of exchanges in the Regional WCA Market (based on the 2021 WCA Market Mid-term Assessment Decision), there is no impact of this update on FTTC Bitstream prices.

6.174 Consequently, having considered the submissions, ComReg remains of the view, as expressed in Section 6.7 of the Consultation, that updates to the NGA Cost Model and NGN Core Model should be confined to updates for the latest relevant WACC and for the latest inputs from the ANM cost model, while the demand, operating costs and asset lives should remain consistent with the HEO assumptions that applied in the versions of these models used to inform prices in the 2018 Pricing Decision.

6.7.3 ComReg's final position

6.175 ComReg's final position is that the monthly rental charge for FTTC based services will be amended to reflect the updates to the LLU, SLU and NGA Link cost inputs as modelled in the ANM, and by applying the applicable regulated WACC of 5.56% in the ANM, the NGA Cost Model and the NGN Core Model.

6.176 The rental charge for FTTC based services is a blend of TD costs for all reusable assets, and BU-LRAIC+ costs for the non-reusable assets.

6.177 The final prices for FTTC services can be found in Section 7, Table 19.

CG Bitstream Services

6.178 The second part of this subsection in the Consultation was in relation to CG Bitstream.

6.7.4 Position set out in the Consultation in respect of CG Bitstream Services

6.179 ComReg proposed in the Consultation to update the monthly prices for CG Bitstream services[501] by applying the most recently set WACC, namely 5.61% at the time of

[498] Wholesale ethernet interconnect link.
[499] Paragraphs 281 to 286 of Eircom's Non-Confidential Response dated 8 January 2021.
[500] Paragraph 292 of Eircom's Non-Confidential Response dated 8 January 2021.
[501] BMB and Bitstream IP.

the Consultation, in the NGN Core Model.

6.180 As explained in the Consultation, ComReg, in the 2018 Pricing Decision recognised that fixed line network operators in Ireland have been focused on investing in NGA infrastructure rather than CGA and this trend is expected to continue for the duration of this price control period. This continues to result in the migration of wholesale customers from CGA to NGA broadband services such as FTTC or FTTH. It must also be recognised that NGA broadband is not available for all lines so CG Bitstream is still required. Demand at the time of the Consultation for the POTS based CG Bitstream service was in the region of 200K.

6.181 ComReg considered that there was no need to encourage further build in terms of current generation services but considered that it is important to protect investments that have already occurred. ComReg also considered that the build/buy signals for CG Bitstream and FTTC services should remain consistent. Simply altering the prices for FTTC services may affect the incentives for OAOs to migrate end-users to fibre-based services.

6.7.5 Respondents' views and ComReg's assessment

6.182 BT, Vodafone and Eircom provided submissions to Question 16 on whether the price for CG Bitstream should be updated as outlined in the Consultation.

6.183 In summary, BT and Vodafone agreed with the proposals from the Consultation. BT noted that CGA services would continue to be required until NGA services can replace them. Vodafone considered that other data should be included in the update of the NGN Core Model. Eircom disagreed with the proposals, as it considered that the pricing proposals distorted migration incentives for operators and users and instead suggested as part of its proposals[502] a capping of prices (allowing for increases of the Consumer Price Index + 5%) would create correct signals instead.

6.184 Having considered the Respondents' submissions, ComReg has not altered the approach as outlined in the Consultation, other than to update the WACC to the latest value in accordance with the 2020 WACC Decision.

6.185 In relation to the updates of CG Bitstream prices, BT agreed that the price for CG Bitstream services should be updated to take account of the revised WACC "*as this addresses the wider economic environment*".[503] A similar position was submitted by Vodafone. However, Vodafone disagreed that updates to the NGA Cost Model and NGN Core Model should be limited to updating the WACC and not include updated demand and cost data.[504]

[502] ComReg's position on Eircom's Proposals is set out in Section 6.2.
[503] Pages 9 to 10 of BT's Non-Confidential Response dated 8 January 2021.
[504] Page 10 of Vodafone's Non-Confidential Response dated 8 January 2021.

6.186 ComReg does not agree with Vodafone's suggestion of updating the data more widely than proposed in the Consultation. For the reasons set out in paragraphs 6.142 to 6.162 above, ComReg does not believe that it would be appropriate to update further parameters for FTTC. Taking a different approach for CG Bitstream would undermine the build/buy signals which depend on consistency of pricing approach for CG Bitstream and FTTC services.

6.187 Eircom disagreed with ComReg's preliminary view given the context of timely migration to fibre and copper switch-off. Eircom also referenced its response to Question 13 and in particular did not consider that updating the WACC as proposed in the Consultation was appropriate.[505] Eircom's view was that the trend in relation to investing in NGA is expected to continue but the progress to date is in the context of current pricing levels and maintaining the incentives established from the 2018 Pricing Decision.[506]

6.188 Eircom agreed that the pricing for CG Bitstream and FTTC services should remain consistent (while noting its disagreement with the proposals around FTTC pricing). Eircom considered that the migration is currently consumer driven and a consumer's assessment of whether to switch to full fibre depends on the pricing relationship between services. If prices for CGA services are reduced this will impact adoption rates for full fibre.[507] Eircom considered that stable copper prices over the short term and flexibility to increase over the medium term could create the correct signals for operators and users in the migration process.[508]

6.189 In relation to Eircom's view that updating the CG Bitstream prices for the latest WACC is inconsistent with ComReg's view (as outlined in the Consultation), "*that it is important to protect investments that have already occurred*" and "*that the build/buy signals for CG Bitstream and FTTC services should remain consistent*",[509] ComReg does not accept that updating CG Bitstream prices for the latest WACC is inconsistent with protecting investments that have already occurred, as the WACC is set at a level that allows the regulated operator to achieve a reasonable return on those investments, as BT observed. Furthermore, applying the same WACC when pricing CG Bitstream and FTTC services should ensure that there is no inconsistency in terms of the build/buy signals for both services. In addition, the NGN Core Model was also updated for the list of exchanges in the Regional WCA, following the 2021 WCA Market Mid-term Assessment Decision. The cost impact on CG Bitstream of using the updated list of Regional WCA exchanges, compared to using the list of

[505] Paragraphs 293 to 294 of Eircom's Non-Confidential Response dated 8 January 2021.
[506] Paragraph 296 of Eircom's Non-Confidential Response dated 8 January 2021.
[507] Paragraphs 297 and 298 of Eircom's Non-Confidential Response dated 8 January 2021.
[508] Paragraph 299 of Eircom's Non-Confidential Response dated 8 January 2021.
[509] Paragraph 302 of Eircom's Non-Confidential Response dated 8 January 2021.

exchanges from the 2018 WLA/WCA Market Review Decision is, however, immaterial.

6.7.6 ComReg's final position

6.190 ComReg's final position is that the monthly prices for CG Bitstream services[510] will be amended by applying the relevant regulated WACC in the NGN Core Model.

6.191 The rental charges are entirely based on a BU-LRAIC+ approach. The final prices for CG Bitstream services[511] can be found in Section 7, Table 18.

[510] BMB and Bitstream IP.
[511] Ibid footnote 510.

7 Wholesale prices

7.1 Overview

7.1 In Section 7 of the Consultation, ComReg set out the proposed prices for the access services modelled through the ANM and the NGA Cost and NGN Core Models. This section now presents the final wholesale prices that shall apply to the following wholesale access services:

(a) LLU, SLU, Line Share and Dark Fibre in the WLA Market (see Section 7.2 below);

(b) CG SABB, CG Bitstream (i.e. BMB and Bitstream IP) in the Regional WCA Market (see Section 7.3 below); and

(c) FTTC based services (including EVDSL) i.e. FTTC based VUA and Bitstream (see Section 7.4).

7.2 The prices set out below assume that new prices will come into effect from the effective date during the financial year ending 30 June 2022, with updates to prices then due each year on 1 July. For the avoidance of doubt, prices in the tables below will only take effect from the effective date.

7.3 The prices set out in this Decision as presented in Tables 13 to 19 below, apply from 1 March 2022.

7.2 Prices for access services in the WLA Market

7.4 The tables below set out the monthly rental charges for LLU, SLU, Line Share and Dark Fibre for the price control period to 30 June 2024.

7.2.1 LLU and SLU

7.5 For LLU and SLU services the maximum monthly rental prices are set out in Table 13 and Table 14 based on the updates as discussed in Section 6.3.

Table 13 Maximum monthly rental prices for LLU

Service	*1 March 2022 - 30 June 2022*	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
LLU *	12.79	13.14	14.05

* Excludes monthly fault repair (i.e. €0.63) and Monthly connection / provisioning (€0.38), as per the prevailing ARO price list.

Table 14 Maximum monthly rental prices for SLU

Service	*1 March 2022 - 30 June 2022*	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
SLU	10.03	10.18	10.68

7.2.2 Line Share

7.6 For Line Share services the maximum monthly rental prices are set out in Table 15.

Table 15 Maximum monthly rental prices for Line Share

Service	*1 March 2022 - 30 June 2022*	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
Line Share*	0.62	0.62	0.62

* Excludes monthly fault repair (e.g. €0.05) and Monthly connection / provisioning (€0.38), as per the prevailing ARO price list.

7.2.3 Dark Fibre

7.7 For Dark Fibre services the maximum annual rental prices are set out in Table 16.

Table 16 Maximum annual rental prices for Dark Fibre (per metre for 1 single fibre)

Service	*1 March 2022 - 30 June 2022*	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
Dark fibre	0.12	0.12	0.11

7.3 Prices for access services in the Regional WCA Market

7.8 The tables below set out the monthly rental charges for CG SABB and CG Bitstream (i.e. Bitstream Managed Backhaul and Bitstream IP). For the avoidance of doubt the charges for Bitstream Managed Backhaul (BMB) and Bitstream IP are incremental to the charges for PSTN-WLR.

7.3.1 CG SABB and CG Bitstream

CG SABB

7.9 Table 17 sets out the maximum monthly rental charges for CG SABB for the price control period to 30 June 2024.

Table 17 maximum monthly rental prices for CG SABB in the Regional WCA Market

Service	CG SABB - €		
	1 March 2022 - 30 June 2022	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
CG SABB: National handover:			
Per port *	25.37	25.33	25.69
Per Mbps	0.44	0.37	0.33
CG SABB: Regional handover:			
Per port *	23.78	23.73	24.10
Per Mbps	0.19	0.16	0.14

* Includes rental costs, fault repair costs and connection / provisioning costs

CG Bitstream

7.10 Table 18 sets out the monthly rental charges for CG Bitstream for the price control period to 30 June 2024.

Table 18 Monthly rental prices for CG Bitstream in the Regional WCA Market

Service	CG Bitstream - €		
	1 March 2022 - 30 June 2022	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
BMB: National Handover:			
Per port *	7.94	8.12	8.36
Per Mbps	0.44	0.37	0.33
BMB: Regional Handover:			
Per port *	6.41	6.47	6.58
Per Mbps	0.19	0.16	0.14
Bitstream IP: National Handover:			
Bitstream IP *	8.28	8.41	8.61
Bitstream IP: Regional Handover:			
Bitstream IP *	6.55	6.59	6.69

* Including line share and fault repair

7.4 Prices for FTTC based services

7.4.1 FTTC based VUA, FTTC based Bitstream

7.11 Table 19 sets out the monthly rental charges for FTTC based NGA services for the price control period to 30 June 2024.

Table 19 Monthly rental prices for FTTC based services

Service	FTTC based NGA services - €		
	1 March 2022 - 30 June 2022	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
FTTC based VUA *	18.36	18.54	19.12
FTTC based Bitstream: National handover:			
Per port *	22.19	22.48	23.24
Per Mbps	0.29	0.27	0.27
FTTC based Bitstream: Regional handover:			
Per port *	20.20	20.42	21.08
Per Mbps	0.11	0.11	0.11
Assumed 90/10 mix for Regional / National Handover			
Per port *	20.40	20.63	21.29
Per Mbps	0.13	0.12	0.12

* Including fault repair and provisioning costs

8 FTTH Connections & Migrations Charges

8.1 Overview

8.1 This section addresses ComReg's assessment of the submissions to the call for input launched in the Consultation. This section concludes that process and presents ComReg's position in relation to pricing matters for FTTH connections and migrations. ComReg has decided, based on the assessment of the submissions received, not to intervene at present.

8.2 In Section 8 of the Consultation, ComReg outlined the pricing approach for FTTH connection and migration charges set out in the 2018 Pricing Decision, described the change in the level of prices charged for since then, and explained the reason for the call for input (having regard to the Settlement Agreement with Sky Ireland Limited[512]). ComReg also listed relevant factors in setting charges for FTTH connections and migrations and set out ComReg's view of the impact on the market since the introduction of these charges while seeking Respondents' views.

8.3 In the Consultation Question 17 sought Respondents' views on the appropriate factors in setting charges for FTTH connections and migrations and whether ComReg's consideration of these was relevant and complete. Question 18 invited Respondents' inputs on the market impact of the charging approach imposed under the 2018 Pricing Decision. For both questions, ComReg requested that stakeholders provide supporting evidence and reasoning.

8.4 In the remainder of this section ComReg summarises its preliminary position from the Consultation as well as setting out the views of Respondents to the Consultation, ComReg's assessment of Respondents' views and ComReg's final position.

8.5 The Consultation, in Section 8.2, detailed how the pricing approach for cost orientated FTTH connection and migration charges had changed from the situation where the charges levied were €270 for a connection and €2.50 per migration to the mechanism introduced under the 2018 Pricing Decision at paragraph 13.30 requiring that the same cost-oriented charge must apply for FTTH connections and migrations, as follows:

[512] https://www.comreg.ie/publication-download/settlement-of-high-court-proceedings-sky-ireland-limited-v-comreg-2018-459-mca

"the cost of FTTH connections / migrations could be recovered based on a combination of an initial up-front connection charge, a charge for migration to another service provider and a recurring rental charge, but that the new connection charge and the charge for migration to another service provider should be subject to two conditions:

(a) The charges for new connections and migrations to another service provider should be the same; and

(b) *The combination of a new connection charge and a charge for migration to another service provider should not exceed the level that would allow Eircom to recover its customer specific connection related investment over the lifetime of the underlying assets, given the same assumptions about customer churn as are used in the margin squeeze tests."*

8.6 Section 8.2 also addressed the evolution of charges since the 2018 Pricing Decision which has seen the FTTH connection/migration charge of €170 implemented on 1 January 2019 and the subsequent reduction to the current price of €100 which has been in place since 1 July 2020. The Settlement Agreement with Sky was also discussed and identified as being the originator of the call for input issued in the Consultation.

8.7 Section 8.2 also detailed how ComReg assesses Eircom's compliance under the 2018 Pricing Decision and the various parameters taken into account (e.g. cost of the connection, churn, asset life, etc.) using data from the Additional Financial Information ('**AFI**') submissions. Eircom is required to provide an AFI statement in relation to the FTTH connection/migration costs and charges as part of its Regulatory Accounting obligations. This AFI enables ComReg to compare the total customer specific FTTH connection costs incurred with the revenues generated (from both internal sales to Eir retail and external sales to other RSPs).

8.8 In the Consultation, ComReg shared its view that both the AFI data for the year ended June 2019 and a review of the then modelled costs for FTTH connections from the ANM indicated that Eircom remained compliant with the condition imposed in the 2018 Pricing Decision, i.e. that the combination of a new connection charge and a charge for migration to another service provider should not exceed the level that would allow Eircom to recover its customer specific connection costs. ComReg provided an illustrative example of how ComReg undertakes this part of the assessment process with the various parameters and inputs outlined and offered interested parties access to a non-confidential FTTH connection/migration assessment spreadsheet.[513]

[513] No interested parties sought access to the illustrative template.

8.2 Relevant factors for the appropriate level of costs for FTTH connection and migration charges

8.2.1 Position set out in the consultation

8.9 In Section 8.3 of the Consultation, ComReg noted that in order to implement a cost-based price control, it is necessary for Eircom to adopt an appropriate methodology for determining the appropriate level of costs. ComReg set out the factors that it considers relevant to such a methodology as including, without limitation, the following:

(a) Eircom's total connections to date in Ireland and the associated data surrounding the costs of all connections including standard and non-standard connections;

(b) The rollout plans, not just of Eircom but of alternative networks in Ireland, in order to assess rollout risks associated with potential future off-network churn rates;

(c) Costs of connections incurred by alternative operators e.g. Virgin Media, Magnet, SIRO, etc. If possible, this should be broken down between standard and non-standard connections to facilitate comparisons between Irish FTTH operators and inform efficiency assessments;

(d) The mix of assets used on providing connections and estimates of lifetimes for the physical asset and the connection in the premise to determine the monthly charge;

(e) Information on likely customer churn between RSPs, e.g. the average customer life of an FTTH customer per RSP on its network;

(f) The expected active lifetime of the customer/premises on the network (as distinct from the customer lifetime with an individual RSP);

(g) The likely mix of standard and non-standard connections in rural and urban areas; and

(h) The likely mix of standard and non-standard connections in rural and urban areas.

8.10 ComReg explained that the above factors were relevant to determining the level of connection costs as:

(a) The 2018 Pricing Decision was finalised at a time when data on FTTH connection costs and customer migration patterns were very limited as FTTH deployment had only recently commenced. By Q2 of 2020 a number of network operators, including Eircom, SIRO, and Virgin Media, have circa 201k FTTH active connections with the result that more comprehensive data should now be available to inform ComReg's view as to how FTTH connection/migration costs might evolve in the future;

(b) The rollout plans of companies evolve over time; the 2018 Pricing Decision is based on the data that were available at the time and operators may have revised / reviewed their rollout plans and expected market shares in light of take-up data. Eircom has relevant cent experience in relation to the 300K rollout in the Rural Commercial Area and the Urban Commercial Area ('Ireland's Fibre Network');

(c) At the same time as Eircom has been rolling out its fibre network, other operators have been rolling out their alternative networks. ComReg considered that these operators should be in a position to share their observed costs and volumes with ComReg to enable a comparison with the Eircom charges. ComReg considered that while these other companies are not subject to the same level of regulation as Eircom is, and as such are not required to prepare management accounts to the same level of granularity as Eircom does, the information that they have gathered on their costs and volumes should enable a comparison to be made. This comparison would be of use as these companies are more likely than not to encounter the same average profile of premises in Ireland e.g. the housing stock should be broadly similar for operators in the country outside of the major urban areas where apartment complexes and office buildings may make the picture more nuanced.

8.11 ComReg was also interested in stakeholder views on the following matters:

(a) The costs and factors considered relevant for FTTH connections in other jurisdictions, where there may be greater numbers of connections, and alternative networks than in Ireland;

(b) The relevant/realistic timelines to be applied in modelling in relation to the customer lifetime period, noting that ComReg applied a 42-month average in the calculation in the 2018 Pricing Decision as this was consistent with the customer life used in margin squeeze tests;

(c) if there is expected to be a different asset life if the lead into the customer premises is overhead or underground; and

(d) how the proportion of asset life during which the connection is unused should be assessed and incorporated into an assessment of FTTH connection and migration costs.

8.12 Question 17 asked "*Having outlined ComReg's initial assessment of relevant factors for the costs associated with connections and migrations, do you consider that they are relevant and complete? Do you consider that any other factors are relevant? In response please provide well justified reasons and provide data to assist in ComReg's consideration of this matter.*"

8.2.2 Respondents' views and ComReg's response

8.13 Four Respondents BT, Eircom, Vodafone, and Sky/Analysys Mason offered views. BT added extra factors which it considered relevant. Eircom suggested additional considerations should be included to justify a premium being applied to the WACC for FTTH, and Vodafone focused more on the underlying charging policy. Analysys Mason (on behalf of Sky) commented on assumed final-drop lifetimes. ComReg did not receive any information from other operators on the costs of connections as sought in paragraph 8.17(c) of the Consultation.

8.14 BT identified two additional factors. First BT referred to the lack of announcement by Eircom on copper withdrawal and its actual occurrence thereafter. BT considered that the absence of such information meant that the estimated copper cut-off of 2025 was an educated guess and ComReg should keep its options open. The second consideration was that VOIP was highly vulnerable to a margin squeeze until VOIP reaches a critical mass. BT considered that this could be overcome by establishing a margin squeeze test between standalone FTTC with VOIP and FTTC with WLR.[514]

8.15 ComReg considers that the points raised by BT in relation to copper switch-off are best dealt with in Section 5.4 where such modelling assumptions are addressed.

8.16 ComReg considers that in relation to a margin squeeze test being imposed between standalone FTTC with VOIP and FTTC with WLR, this is outside the remit of this Decision and given the veto of the notified 2021 FACO Market Review Draft Decision, then the existing margin squeeze tests remain in place.

8.17 Eircom considered that while the lists of costs for connections and migrations may be complete it suggested that other considerations should be assessed before a price could or should be set. These additional considerations focused on differences between urban and rural connection configurations, the presence of alternative networks and intensity of competition[515] which, Eircom concluded, meant any reduced cost of urban FTTH costs was offset by increased demand challenges. Eircom viewed these as increasing the risk related to FTTH connections and migrations, and these needed to be reflected in a premium added to the weighted average cost of capital. Eircom outlined four factors that should be assessed when setting FTTH connection/migration prices: investment per home connected; return on the investment; economic life of the connection assets; and probability of chargeable migration. Eircom also commented on its cost recovery over time and ComReg's modelling of this. Eircom, however, having discussed these points, considered that the current wholesale charge of €100 provides appropriate signals

[514] Page 10 of BT's Non-Confidential Response dated 8 January 2021.
[515] Paragraph 304 of Eircom's Non-Confidential Response dated 8 January 2021.

to the market about its commitment to fibre investment and is in compliance with 2018 Pricing Decision.[516]

8.18 Eircom shared its views on its current investments in fibre (in predominantly rural areas) and considered there are reduced opportunity for re-use of poles/ducts per home connected raising the incremental cost of a connection as it is demand dependent. Eircom was of the view that this is consistent with the FTTH connection/migration cost model where recovery of such costs is dependent on that consumer obtaining service from different retailers over time.[517]

8.19 Eircom considered that the return on the investment (at the then latest WACC rate of 5.61%) is not appropriate as the risk exists of lower take-up rates due to consumers continuing to use legacy services or competing infrastructures. Eircom suggested that ComReg must consider the extra risk factors of the economic life of the optical distribution network, and the number of off network churn. The economic life of the network assets could be affected by slow initial take up and the early arrival of a successor technology (to replace FTTH), and Eircom considers that the current FTTH connection/migration cost model lengthens its cost recovery so a 5% premium should be added and in making such an argument identified international precedents. Eircom also referred to the precedent of NGA premiums used by other European NRAs and listed the relevant countries.[518]

8.20 Eircom also commented on the economic life of the connection assets. It considers that the effective economic life of FTTH is affected by two factors – the economic life of FTTH technology, and the service life of the connection (from first connection of the service to final removal excluding periods of inactivity). Eircom considered that this may increase the risk related to the returns for its FTTH investment and suggested that a premium on the WACC would address this. Eircom further added that the life of the platform should be 20 years, not the weighted average 12 years used in the current assessment template. Eircom also suggested that the FTTH platform life may be shorter in urban areas and subject to high risk of off-network churn.[519]

8.21 Eircom next commented on the probability of a chargeable migration and considered that the current existing methodological use of a 42-month period is simplistic, for two reasons – firstly that post connection there may be periods when the service is not used, and secondly that recent bundles churn data (not shared with ComReg) indicates that bundles with multiple elements reduce migrations. Either or both of these could lead to stranding of costs, with the reduction in migrations leading to an estimate that up to one third of Eircom's connection costs would be at risk of

[516] Paragraphs 305 to 308 of Eircom's Non-Confidential Response dated 8 January 2021.
[517] Paragraph 309 of Eircom's Non-Confidential Response dated 8 January 2021.
[518] Paragraphs 310 to 313 of Eircom's Non-Confidential Response dated 8 January 2021.
[519] Paragraphs 314 to 318 of Eircom's Non-Confidential Response dated 8 January 2021.

stranding. Eircom referenced certain forecast information from 2016 related to IPTV services penetration and how Eircom considers this will reduce migrations. Eircom considered that the 42-month period was based solely on broadband services and not reflective of reality and suggested that [✂ ✂] months based on Eircom retail data is appropriate. Eircom noted that competition from other networks and periods of vacancy associated with dwellings in urban areas may increase churn off its network. Eircom claimed that the cost of rural connections was understated in the Consultation at €450 compared to more recent estimates and suggested the more recent figure be used in any assessments by ComReg. Eircom though concluded by noting that the charge of €100 is likely all that it can commercially charge.[520]

8.22 Eircom expressed concern that its on-going compliance with its cost orientation obligation for FTTH connections/migrations was being assessed using a simplified spreadsheet of costs which Eircom considers not capable of assessing other factors such as cumulative losses to date reported in the AFI on FTTH connections.[521]

8.23 ComReg welcomes the view expressed by Eircom that the list of costs as shared by ComReg appears complete.

8.24 In relation to the additional factors suggested by Eircom, Eircom's core argument in short appears to be that there is extra risk associated with FTTH investments, due to inter alia slow take up of FTTH, early arrival of a successor technology, need for varying lives for the platform, less migration events due to reduced switching (due to bundling) and off network switching in urban areas, such that a premium should be applied to the WACC rate for FTTH to address these perceived risks. This is a repeat of an issue that Eircom previously raised in submissions made in advance of the 2020 WACC Decision.

8.25 ComReg does not agree with the proposal from Eircom for a WACC premium. With regards to a WACC premium for FTTH connections/migrations ComReg's position is set out in paragraph 7.96 of the 2020 WACC Decision (reproduced below):

> "*FTTH connection and migration costs are subject to a price control which requires that they be at the same level and that they do not exceed the level that would allow Eircom to recover its customer specific connection related investment over the lifetime of the underlying assets. However, the investment in connections/migrations is only made in response to customer requests so these activities are inherently less risky than rolling out network infrastructure where demand is uncertain. Hence ComReg considers that there is no justification for a WACC premium for FTTH connections/migrations.*"

8.26 Responding to Eircom's other points in turn:

[520] Paragraphs 319 to 329 of Eircom's Non-Confidential Response dated 8 January 2021.
[521] Paragraphs 330 to 331 of Eircom's Non-Confidential Response dated 8 January 2021.

8.27 With regard to the economic life (i.e. the asset lives) of the connection asset, ComReg wishes to highlight that the template allows for a range of asset lives to be considered in any assessment of a proposed connection/migration charge. The template is not used as a cost model to set prices as Eircom has the flexibility, under the 2018 Pricing Decision, to set the connection/migration charge. Instead, the primary purpose of the template is to assess if Eircom's proposed price risks being non-compliant with the obligation that the revenues from the combined connection/migration charges should not exceed the level that would allow Eircom to recover its customer specific connection related investment over the lifetime of the underlying assets.

8.28 The 12-year figure that Eircom noted is but one of many possible options within the template for this parameter.[522] The 12-year figure indicates a time period where the forecast level of connection/migration revenues is not expected to exceed the expected level of customer specific costs that Eircom would incur in providing the connection/migration services based on a €170 charge, whereas a time period of 14 years could result in over recovery. Ultimately, this period will be dependent on the other factors included in the template. For example, the period for cost recovery will shorten if the connection/migration charge is increased but will lengthen in response to an increase in the average connection cost or an increase in the average customer life.

8.29 To date, ComReg has not consulted on a specific asset life for an FTTH connection asset. Table 12 in the Consultation included indicative figures based on a possible average of the physical life of overhead and underground final drops. ComReg notes that Analysys Mason argue that "*ComReg should align the assumed final-drop lifetimes with the street distribution infrastructure equivalents*."[523] However, this would suggest that the physical life of certain assets is the only consideration when determining the asset life, whereas cost recovery of final drop assets can be dependent on the period that the service to the connected premises is active.

8.30 Eircom's position that the service life of the connection should be a key consideration in respect of the asset life for such assets appears to have some merit, as cost recovery does depend on assets not being stranded. Hence, the service life might be more relevant in the context of customer specific assets such as those required for a connection than for an asset in the main cable network that is not dependent on the service uptake from one particular premises and, for this reason, the expected active lifetime of the customer/premises on the network was one of the factors that ComReg proposed for consideration in the Consultation.

8.31 Nonetheless, ComReg is of the view that it will be some time before sufficient data is available to determine what the average FTTH service life is likely to be in Ireland

[522] For the avoidance of doubt, the illustrative template as prepared was set to 14 years.
[523] Subsection 7.1.1, pages 79 to 80 of the Analysys Mason Report for Sky Ireland dated 8 January 2021.

and if factors such as off-net churn might give rise to different average service lives in urban and rural areas.

8.32 On the probability of a chargeable migration and the customer lifetime period, the assessment approach uses the same assumptions as used in the margin squeeze tests, which is 42 months as determined in the 2018 Bundles Decision. For the avoidance of doubt, this number was not just based on broadband services as Eircom suggests but rather on bundles sold in the Irish market including services such as IPTV, mobile, etc., and relied on data from all major retailers, not just Eircom. ComReg therefore does not consider any need to change from the existing value without more evidence. ComReg notes Eircom's views regarding customer life (which revisited views expressed at the time of the 2018 Bundles Decision about NGA having a longer lifetime than 42 months) and off-network churn and invites Eircom to provide empirical data in due course if adequate data becomes available.

8.33 In relation to Eircom's concerns surrounding the simplicity of assessing its ongoing compliance through a single spreadsheet, ComReg wishes to emphasise that the primary purpose of the template is to provide the basis for an initial assessment of Eircom's pricing submissions in respect of connection/migration charges, but ongoing compliance with Eircom's obligations is monitored through the specific AFI that Eircom provides as part of its cost accounting obligations. The AFI was developed so that key parameters in respect of the FTTH connection/migration charges could be monitored. In future years it may prove beneficial for Eircom, based on the submissions provided by Eircom to the Consultation in relation to FTTH connections, to further refine its reporting in the AFI to identify connections costs related to the deployment of the IFN which is still in progress.

8.34 The parameters identified in the AFI include the cumulative losses or profits that are specific to connection/migrations since 2016, a breakdown of costs between standard and non-standard connections each year, the annual numbers of connections and the annual number of migrations. Indeed, the fact that Eircom has been able to highlight the cumulative losses in the FY19 AFI (and since the Consultation the FY20 AFI) demonstrates that the AFI is presented in a format that facilitates the ongoing monitoring of such key metrics.

8.35 Vodafone outlined its view on the existing policy of equalised connection and migration charges and considered that there was no logic to explain to consumers why such charges were equal. Vodafone added that the migration charge may constrain consumer choice and that the migration charge should reflect the true cost of migration.[524]

8.36 ComReg addresses Vodafone's points in Section 8.3.2.

[524] Page 10 of Vodafone's Non-Confidential Response dated 8 January 2021.

8.2.3 ComReg's final position

8.37 ComReg notes that no additional relevant factors were identified by Respondents, rather the points raised focused more on suggestions to alter certain values (e.g. Eircom/Analysys Mason), or sit outside the FTTH connection/migration cost sphere of impact (e.g. BT), or are related to policy which was not being proposed for amendment (e.g. Vodafone). Therefore, ComReg has decided that the factors as listed in section 8.3 of the Consultation are relevant and fit for purpose and no additional factors have been identified.

8.38 ComReg will continue to monitor and assess the extent that the costs of FTTH connections/migrations are recovered through the relevant charges and, where necessary, will engage with Eircom on any notifications received seeking changes to the prevailing charges or any material issues identified (where suitable evidence is provided).

8.3 Market impact of existing prices

8.3.1 Position set out in the Consultation

8.39 The second part of this section in the Consultation discussed the market impact of existing prices, in particular the impact of prices over time – e.g. prior to the 2018 Pricing Decision where a large differential between the connection and migration fee appeared to have stifled competition. Since that Decision, which equalised prices between connections and migrations, wholesale volumes on Eircom's platform have grown significantly. ComReg was of the view that the changes introduced by the 2018 Pricing Decision had helped address the competition problems identified at that time.

8.40 ComReg noted that under the European Electronic Communications Code, once transposed, its statutory objectives would include:

(a) promote connectivity and access to, and take-up of, very high-capacity networks, including fixed, mobile, and wireless networks, by all citizens and businesses of the Union;

(b) promote competition in the provision of electronic communications networks and associated facilities, including efficient infrastructure-based competition, and in the provision of electronic communications services and associated services;

(c) contribute to the development of the internal market by removing remaining obstacles to, and facilitating convergent conditions for, investment in, and the provision of, electronic communications networks, electronic communications services, associated facilities and associated services, throughout the Union, by developing common rules and predictable regulatory approaches, by favouring

the effective, efficient and coordinated use of radio spectrum, open innovation, the establishment and development of trans-European networks, the provision, availability and interoperability of pan-European services, and end-to-end connectivity;

(d) promote the interests of the citizens of the Union, by ensuring connectivity and the widespread availability and take-up of very high capacity networks, including fixed, mobile and wireless networks, and of electronic communications services, by enabling maximum benefits in terms of choice, price and quality on the basis of effective competition, by maintaining the security of networks and services, by ensuring a high and common level of protection for end-users through the necessary sector-specific rules and by addressing the needs, such as affordable prices, of specific social groups, in particular end-users with disabilities, elderly end-users and end-users with special social needs, and choice and equivalent access for end-users with disabilities.

(e) Under the Code ComReg will also be obliged to promote efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings.

(f) It also will be obliged to promote regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods and through cooperation with other NRAs, with BEREC, and with the European Commission.

8.41 ComReg noted that ordinarily ComReg would not revisit the nature of a price control obligation in advance of an updated market analysis being undertaken and clear and compelling evidence of a price control failing to address the competition problems originally identified that supported the obligations being imposed would be required prior to ComReg engaging in an early review of a price control. ComReg invited input on the market impact of the controls on FTTH connection and migration charges included in the 2018 Pricing Decision, in accordance with the settlement agreement with Sky.

8.42 ComReg then asked in Question 18: "*Do you have any views as to the market impact of the existing FTTH connection and migration charges on the potential competition problems that ComReg identified in the WLA market? If you consider that the existing price control obligation is materially failing to address these problems, please provide supporting evidence and reasoning*."

8.43 For ease of reference, ComReg notes again that under the 2018 Pricing Decision, Eircom is required to ensure that the new connection charge and the charge for migration to another service provider is the same, and that the combination of a new connection charge and a charge for migration to another service provider should not exceed the level that would allow Eircom to recover its customer specific connection related investment over the lifetime of the underlying assets, given the same

assumptions about customer churn as are used in the margin squeeze tests. The 2018 Pricing Decision means that the charge should only be levied where there is a change in RSP selling the FTTH service on Eircom's network; where the retail customer is being migrated from a different network; or where the retail customer is being connected to Eircom's FTTH service for the first time. Thus the charge may be levied where a retail customer switches to FTTH from, for example, an FTTC based service on Eircom's network without changing RSP. But the charge should not be levied if an RSP merely makes a change to the way it gains access to Eircom's FTTH network (e.g. by switching from one intermediate wholesale provider to another, or by switching between using an intermediate wholesale provider and purchasing services directly from Eircom). Such changes involve neither a change of underlying network nor churn at the retail level.

8.3.2 Respondents' views and ComReg's response

8.44 Eircom, BT, Vodafone, and Sky contributed their views to Question 18.

8.45 Eircom noted that the FTTH rollout in Ireland is at a relatively early stage and that connectivity lags behind the EU average. Eircom suggested that there are other cost models which could be used but did not specify any particular approach to adopt.

8.46 Eircom also considered that the existing charges have addressed any potential concerns that ComReg may have had prior to the 2018 WLA/WCA Market Review Decision.[525] Eircom further added that its monthly FTTH rental charges are not subject to cost orientation, and its FTTH connection/migration charges were below cost but still it cannot offer promotions or discounts which creates a situation of commercial asymmetry in the Irish market as NBI or SIRO could offer such promotions.[526] Eircom suggested that ComReg should consider permitting Eircom to engage in differentiated pricing based on levels of wholesale commitments with Eircom and some Access Seeker(s) and Eircom referenced part of the 2013 NGA Recommendation to justify this suggestion.[527] Eircom concluded by agreeing with ComReg's approach in relation to not reopening price controls during a price control period and added that it considered there was insufficient evidence to do so presently.[528]

8.47 ComReg notes Eircom's views in relation to the stage of development of the FTTH market in Ireland and ComReg considers that there appears to be scope for further growth in new connections for this technology.

[525] Paragraph 334 of Eircom's Non-Confidential Response dated 8 January 2021.
[526] Paragraph 335 of Eircom's Non-Confidential Response dated 8 January 2021.
[527] Paragraph 336 of Eircom's Non-Confidential Response dated 8 January 2021.
[528] Paragraph 337 of Eircom's Non-Confidential Response dated 8 January 2021.

8.48 ComReg welcomes Eircom's view that the existing charges based on the 2018 Pricing Decision have addressed ComReg's concerns.

8.49 In relation to Eircom's commentary regarding a "*commercial asymmetry*" existing, the original reasoning for the ban on Wholesale promotions and discounts was based on ComReg's view that such promotions and discounts offered by the SMP operator (Eircom) could create uncertainty for Access Seekers and distortions around the price for WLA/WCA products and services which are subject to cost orientation (such as FTTH connections/migrations). ComReg considers that the conditions supporting this ban continue to apply. Eircom, as the designated SMP operator in the WLA and WCA Markets, has the ability and incentive to engage in behaviours that could undermine competition, and providing Eircom with such an ability (to provide promotions/discounts to its wholesale services) could create a situation of uncertainty/inequality among Access Seekers by an un-levelling of the playing field, e.g. it could inter alia enable Eircom to offer deals that favour one Access Seeker over another. Furthermore, when prices are set under cost orientation, such as for FTTH connections/migrations, then offering discounts/promotions to those prices would create two inter-related issues; the first being recoverability/funding of the cost of such discounts/promotions (e.g. other Access Seekers would be funding the discount), and secondly if such discounting was possible without increasing prices for other Access Seekers then a question arises as to whether the charges were actually cost oriented to begin with. These would then create an asymmetry in compliance with the cost orientation obligation. ComReg therefore considers that altering the 2018 Pricing Decision ban on promotions and discounts for FTTH connections/migrations is not appropriate.

8.50 ComReg notes Eircom's views in relation to reopening the price control at this point.

8.51 Vodafone referred to its comments in response to Question 17, which were that there was no logic to explain to consumers why the charges for connections and migration were equal. Vodafone added that the migration charge may constrain consumer choice and that the migration charge should reflect the true cost of migration.[529]

8.52 BT was of the view that it was time to remove the artificial migration pricing barrier as the market is now growing rapidly and migration charges should be aligned with their costs. BT also considered that a 42-month period provides sufficient time to recover the cost of a connection, and notes that the new EECC allows operators to use 24-month customer contracts which could be used to protect the connection investment. BT also added that the original 2016 WLA/WCA Market Review consultation (ComReg document number 16/96) indicated that part of the connection cost could be recovered through rentals.[530]

[529] Ibid footnote 524.

[530] Page 2, paragraph 4 of BT's Non-Confidential Response dated 8 January 2021.

8.53 BT also expressed its disappointment with the equalisation of charges and disagreed that different prices could have stifled competition. For BT, the volumes of FTTH were tiny at the time of the 2018 Pricing Decision, the regulatory framework was uncertain, and some operators had yet to complete developments to enter the FTTH market, and the final decision did not align with the proposal in the 2017 Pricing Consultation (that the costs of the connection should be recovered through a combination of upfront connection charges and a monthly rental charge). BT was of the view that the activity to migrate customers does not cost €170, rather it is closer to the FTTC charge of €2.50 and end-user ability to change provider is a key principle in regulation (and the EECC supports this). ComReg's approach would impede this right by the use of high prices.[531]

8.54 According to Sky, "… *the current FTTH connection/migration regime has already seen enormous and undue benefits accrue to the SMP provider and gives it far too much flexibility. The regime is also distortionary and does not promote the interests of end users or adhere to cost causation principles*".[532]

8.55 Sky noted ComReg's hypothesis in the 2018 Pricing Decision that the lack of operators on Eircom's FTTH platform reflected a wait and see approach, to clarify that such an approach was not being followed by Sky.

8.56 Sky was of the view that the equalisation of the migration charge is distortionary to competition as it dramatically weakened retail competition/options for already connected customers.[533] Sky considered that the reduction in the FTTH connection/migrations charges to €100 (July 2020) was related to Eircom's entry into the Urban Commercial Area where it would face infrastructure competition, and that this change in the charge is reflective of mistakes by ComReg permitting Eircom to exploit its market power in the Rural Commercial Area.[534]

8.57 Sky suggests that the €100 charge should be used as a cap on any future charges and speculated that Eircom was willing to invest in FTTH in the Rural Commercial Area with connection charges set at close to zero.[535]

8.58 Sky also queried why other access services (WLR, etc.) do not have similar migration charges as FTTH does and was of the view that there is no justification for FTTH migration charges at the current levels, and that erecting such a barrier to switching is not in keeping with ComReg's objectives. Sky referred to section 7.2.2 of the Analysys Mason report which described the migration charge as a "*losing bonus for*

[531] Pages 10 and 11 of BT's Non-Confidential Response dated 8 January 2021.
[532] Page 5 of Sky's Non-Confidential Response dated 8 January 2021.
[533] Paragraph 136 of Sky's Non-Confidential Response dated 8 January 2021.
[534] Paragraph 137 of Sky's Non-Confidential Response dated 8 January 2021.
[535] Paragraph 138 of Sky's Non-Confidential Response dated 8 January 2021.

Eircom", in that Eircom could then use that bonus to subsidise new customer acquisitions.[536]

8.59 Sky concluded its contribution by recommending that the migration charge be lowered.[537]

8.60 Analysys Mason's report noted, first, that the charges do not reflect the distribution of benefits, and second, that customers who switch more will give rise to higher wholesale charges creating a competitive distortion.

8.61 The central tenet of Analysys Mason's first argument is that the benefits of a FTTH connection are not instantaneous but rather are on-going (use of fibre enabled services for the consumer, and profit for the retailer), and connection charges by Eircom Retail and other retailers appears to align with that view (set at zero). Analysys Mason considers that pricing which does not follow the distribution of benefits is uneconomic since it distorts economic decisions by wholesale buyers and retail consumers, and as such connection charges should be recovered over time through rental charges rather than the current system.[538]

8.62 Analysys Mason's second argument is tied to the arithmetic of the current charging methodology – the more migrations that occur the more charges incurred compared to a customer that does not switch retailer as frequently. Analysys Mason considered that this creates an "*uneconomic competitive distortion*", which leads to payments to Eircom that it can then use to "*subsidise the network costs and retail prices of consumers who do not switch as often*" – a "*losing bonus*" for Eircom, which Analysys Mason views as causing a significant reduction in competitive intensity. Analysys Mason suggests a connection and migration charge of around €2.50 to cover for the administration activity should apply, with the cost of connections covered through on-going rental charges.[539]

8.63 ComReg notes that the submissions centred on the impact of the policy from the 2018 Pricing Decision that equalised connection and migration charges. The key aspects raised include that the migration charge is distorting competition and that the cost of the migration charge is not aligned to the cost of the activity. These two points will be addressed after providing the context of why charges were set under such a methodology in the 2018 Pricing Decision. Other parts in relation to Eircom's "strategy" and motivations are covered also for completeness.

[536] Paragraphs 138 to 141 of Sky's Non-Confidential Response dated 8 January 2021.
[537] Paragraph 142 of Sky's Non-Confidential Response dated 8 January 2021.
[538] Section 7.2.1, pages 81 to 83 of the Analysys Mason Report.
[539] Section 7.2.2, pages 83 to 86 of the Analysys Mason Report.

Context for charges being the same

8.64 The 2017 Pricing Consultation preceding the 2018 Pricing Decision noted that there was uncertainty related to the costs of, and demand for, providing FTTH connections. After consideration of the submissions received in response to the Consultation, in the 2018 Pricing Decision, ComReg decided to alter the methodology to an equalised charging regime to strike the right balance in the price control obligation between the retail demand uncertainty; cost recovery for Eircom's investment; reducing a barrier to entry (high up-front connection charges) for retailers; avoid distorting incentives on retailers to target already connected customers versus unconnected customers; and predictability in the market for retailers in relation to charges.[540]

8.65 This meant adopting a policy that required Eircom to make the charge of connections and migrations the same. This policy was decided upon so as to minimise the potential distortions to competition arising from having a first-time connection charge that was so high that it would be inconsistent with the objective to encourage access to the internet at a reasonable cost to end users. Concern had also been raised in the 2017 Pricing Consultation that there should be no incentive for operators to focus solely on 'winning' from another operator FTTH customers who are already connected. Such a situation would have led to perverse incentives on operators whereby there was little to no motivation for operators to add new customers to the FTTH network, preferring instead to rely on gaining already connected customers. Following such a strategy while advantageous for the winning operator would have been detrimental to the losing operator and could well have had a detrimental impact on the overall rollout and take-up of FTTH.

8.66 ComReg also detailed in the 2018 Pricing Decision,[541] that the decided upon policy was one that sought to achieve an appropriate balance between several factors. These factors were to: allow Eircom flexibility in pricing when retail demand is uncertain; permit Eircom to recover efficiently incurred costs; remove undue risk from retailers that could deter them from offering FTTH services; avoid distortionary incentives for retailers in terms of connected/unconnected customers; and provide predictability around the maximum level of charges. Therefore, ComReg in the 2018 Pricing Decision allowed Eircom "*to recover the costs of customer specific connection related investments from a combination of an initial upfront charge, a charge for migration to another service provider and recurring rental charge*".[542] The pricing flexibility provided to Eircom within this approach does mean that Eircom is the master when it comes to setting charges – while Eircom has the opportunity to recover connection charges through on-going rentals if it so chooses, in all cases Eircom is subject to an obligation of cost orientation.

[540] See subsection 13.2.3 of the 2018 Pricing Decision.
[541] Paragraph 13.32 of the 2018 Pricing Decision.
[542] Paragraph 13.47 of the 2018 Pricing Decision.

8.67 Therefore, ComReg's decision sought to address the identified problems (incentives around targeting of existing connections ahead of new connections) with a methodology deemed to be the most suitable solution. Furthermore, it is important to note that FTTH is an entirely new network where every new service incurs the cost of a new physical connection, unlike the copper network where at this point it's well established customer base / ubiquity means that new connections represent only a small percentage in costs.

Cost of the migration charge not being the cost of the activity

8.68 Against this background, it is correct that the current migration charge imposed by Eircom is not reflective of the true cost of migrating a connected customer (as raised by BT, Sky, and Vodafone). However, recognition needs to be given to the highly inter-related nature of the decided-upon charging methodology. As explained above, requiring Eircom to equalise the charges for connection and migration was to remove the disincentive for retailers to connect new customers to the FTTH platform. The equalised charging regime recognises that the benefit to a retail service provider ('**RSP**') is the same regardless of whether the customer being acquired is a new connection or an existing connection being migrated. This was decided upon as part of the appropriate pricing flexibility to enable cost recovery by Eircom. Altering the approach now could fundamentally undermine the rollout of FTTH in the Irish market at a time when it would not be prudent to do so.

8.69 In contrast, ComReg notes that WLR and FTTC services were introduced when the copper network was long established with a large number of active customers. As a result, the majority of WLR and FTTC services were provided to existing customers that were already connected to the copper access network. Consequently, most acquisitions only involved the migration of existing customers and only a small minority would have necessitated a new copper connection and the related customer connection costs.

8.70 FTTH, in contrast, is in the early stages of deployment and almost all customer acquisitions will require Eircom to incur the cost of a new physical connection. This feature is likely to continue for many years to come, as Eircom extends its FTTH network into urban areas. Accordingly, relative expenditure on new connections will be proportionally much higher for the growing FTTH customer base than was the case when WLR and FTTC were introduced, while the customer base over which that FTTH connection related expenditure can be recovered is currently much smaller than the established copper access network's customer base that supported the launch of WLR and FTTC services. Therefore, the ability of FTTH rental charges to allow for a contribution to the recovery of connection costs is currently more limited than was the case with equivalent copper-based services such as WLR and FTTC. ComReg's decision to allow migration charges to contribute to the recovery of FTTH connection specific costs acknowledges these factors and recognises that the RSP

that acquires a new customer through a migration is benefitting from the original connection.

8.71 Furthermore, ComReg does not accept Analysys Mason's arguments that there is no particular benefit arising from either a connection or a migration event, and that all benefits are only accrued over the lifetime of the service. While there might be some merit in this argument when considered from the perspective of the retail customer, it ignores the fact that connection/migration charges are wholesale charges.

8.72 An RSP can expect to pay either a connection or a migration charge each time it acquires a customer and the fact that the RSP recognises a benefit from acquiring a new customer is evident from the widespread practice of RSPs offering discounts to new customers but not to the existing customer base. Consequently, the distribution of benefits needs to be considered from the perspective of the RSP, not the end-user, and the benefit to the RSP from acquiring a new customer is the same regardless of whether that acquisition is the result of a new FTTH connection or the migration of an existing customer from another RSP. Therefore, ComReg is of the view that having equalised wholesale charges for connection and migrations is consistent with the distribution of benefits.

8.73 In relation to the "*losing bonus*" argument from Sky (and Analysys Mason) and cross-subsidy to elsewhere within Eircom, this is not an accurate description of how cost recovery under an obligation of cost orientation works. Eircom is not allowed to recover more through connection/migration charges than the costs it incurs over the lifetime of the assets. As discussed in the Consultation, Eircom's AFI for year ended June 2019 indicated that it was in compliance with this obligation (paragraph 8.13 of the Consultation), its average costs (in respect of customer specific connections) were in excess of €450 per connection,[543] and as tracked in the AFIs, Eircom has not fully recovered these costs yet. Furthermore, should Eircom's FTTH rental price ever be regulated through cost orientation the extent that it has recovered costs through connection/migration charges will be considered when setting charges.

8.74 ComReg recognises that customers that switch retailers more frequently will generate more migration charges compared to ones that do not. However, a degree of averaging is typical of most pricing approaches and, as Eircom is prevented from recovering more than the costs it incurs in providing connection/migrations, the revenue from customers who churn more frequently should lead to lower charges overall for other customers. It is also the case that the same wholesale connection/migration charge apply to all customers regardless of the actual cost that Eircom Wholesale incurs when establishing the connection. Although the average cost to date is in excess of €450, most standard connections incur a lower cost while

[543] The 2020 AFI indicates that the costs of connections are €[✂ ✂] which represents a small decline from 2019 but are still in excess of €450.

a percentage of connections incur a significantly higher cost. At a wholesale level, this means that customers who cost less to connect will subsidise those customers who cost more to connect.

8.75 Analysys Mason also notes that Eircom Wholesale appears to recover "*close to 100% of the estimated cost of connection from the wholesale connection (and migration charges), and close to none of the connection costs from ongoing rentals*."[544] However, this outcome is very much dependent on the number of times the average customer migrates and if customers migrate less frequently than suggested by the assumed 42 month average customer life, then on-going FTTH rental charges could have to recover a higher share.

8.76 Therefore, while Analysys Mason's conclusion that "*the cost recovery of the service in its entirety should be distributed as much as possible to rental charges*"[545] may make sense with respect to the retail charges levied by an RSP on its retail customers, it is not consistent with the distribution of benefits that are observable at the wholesale level. ComReg remains of the view, as set out in the 2018 Pricing Decision (paragraph 13.47) that Eircom should have the flexibility to recover its efficiently incurred costs, including cost of capital, from a combination of the wholesale monthly rentals, connections, and migration fees it charges to RSPs.

Migration charge distorting competition

8.77 In relation to constraining consumer choice, ComReg notes that the connection/migration charges are wholesale charges that are incurred by the RSP when acquiring a customer and the RSP has significant flexibility in terms of how it recovers such acquisition costs in the retail charges it levies on its customer base. Indeed, many RSPs offer promotional discounts such as free connections or migrations and reduced initial rentals to new customers with the result that the customer may start to face higher rental charges after 12 months.

8.78 ComReg's concern when finalising the 2018 Pricing Decision was that, if the RSP faces a materially different charge when acquiring existing FTTH customers compared to customers requiring a new FTTH connection, this could deter RSPs from targeting new connections and incentivise the RSP to target existing customers thereby leading to an inefficient level of churn in the market and inhibiting overall growth. Since the policy of equalisation was put in place, significant volumes of new connections have occurred, and there will be further new connections as FTTH deployment is extended into urban areas. Therefore, it does not appear justifiable to alter the approach at this time to one with high up-front connection charges, which

[544] Section 7.1.1, pages 79 to 80 of the Analysys Mason Report.
[545] Section 7.2.1, pages 81 to 83 of the Analysys Mason Report.

may deter RSPs from targeting new connections and inhibit the growth of overall volumes on the FTTH network.

8.79 ComReg notes BT's observations regarding the equalisation of FTTH charges and ComReg considers that doing so was justified based on the available information. Figure 21 below presents the growth in subscribers served by OAOs on the Eircom FTTH platform (up to Q2 2021 market data), this shows that OAO volumes on the FTTH platform continue to grow and there would appear to be a significant potential for further growth in new connections, given that Eircom's IFN deployment[546] is underway. ComReg considers that doing as BT proposes (cutting the migration charge) could jeopardise FTTH developing to its full potential if ComReg intervenes at this point for the reasons set out above. Furthermore, ComReg considers that the data on FTTH connections on the Eircom platform support the policy intervention and the growth in non-Eircom market share has since Q1 2019 been significant.

Figure 21 OAO's retail customer share on Eircom's FTTH platform Q1 2019 to Q2 2021.

8.80 In relation to BT's contention that the equalisation of FTTH connection/migration charges restricts customer choice and switching, as outlined in the 2018 Pricing Decision (see subsection 13.2.3) such a policy could also encourage operators to focus efforts on already connected subscribers to the detriment of retailers who paid out the much higher connection charge. In addition, BT's argument does not recognise that in the absence of equalised charges, the connection charge for new connections may need to increase significantly to ensure cost recovery was

[546] Slide five of Eircom's results presentation for the third quarter to 31 March indicated that 382,000 premises out of 1.4m have been passed. https://www.eir.ie/opencms/export/sites/default/.content/pdf/IR/presentations/2020_2021/eir_Q3_FY21_results_presentation.pdf

achieved, were Eircom not to seek to recover more costs through on-going rental.

8.81 Were the situation to revert to one of high connection charges, and presuming that Eircom chooses not to recover more costs through on-going rental, several counter competitive scenarios may arise.

8.82 Under one scenario of high and non-recoverable connection charges a losing operator would not, in a competitive retail market, be able to increase retail prices to cover this risk, but instead would simply have to absorb the loss, which could lead to market-exit, thereby reducing competition. Another scenario to the detriment of consumers would be one where all retailers might realise that this risk (non-recoverable connection charges) exists and increase retail prices so as to cover the extra risk. Another scenario would see operators avoid offering FTTH entirely thereby decreasing choice for consumers. In a multi-period situation this could lead to any number of sub-optimal outcomes, the clearest being that no operator would willingly choose to take on the risk of connecting a new customer. While this could be remedied to a degree by retailers seeking that customers pay the higher connection charge in full, this too would deter take-up except by those most eager customers who could afford to pay high up-front charges. In either case these outcomes would not meet ComReg's objectives of promoting competition, encouraging efficient investment and innovation, and the interests of users by encouraging access to the internet at a reasonable cost to end-users. ComReg does not believe that lowering migration charges, and at the same time increasing the initial connection charge so as to ensure cost recovery, at such a sensitive time in the FTTH rollout would be prudent. In fact this would be a retrograde step; especially given ComReg's objectives under the European Electronic Communications Code (once transposed):

(a) promote connectivity and access to, and take-up of, very high capacity networks, including fixed, mobile and wireless networks, by all citizens and businesses of the Union;

(b) promote competition in the provision of electronic communications networks and associated facilities, including efficient infrastructure-based competition, and in the provision of electronic communications services and associated services;

(c) contribute to the development of the internal market by removing remaining obstacles to, and facilitating convergent conditions for, investment in, and the provision of, electronic communications networks, electronic communications services, associated facilities and associated services, throughout the Union, by developing common rules and predictable regulatory approaches, by favouring the effective, efficient and coordinated use of radio spectrum, open innovation, the establishment and development of trans-European networks, the provision, availability and interoperability of pan-European services, and end-to-end connectivity;

(d) promote the interests of the citizens of the Union, by ensuring connectivity and the widespread availability and take-up of very high capacity networks, including fixed, mobile and wireless networks, and of electronic communications services, by enabling maximum benefits in terms of choice, price and quality on the basis of effective competition, by maintaining the security of networks and services, by ensuring a high and common level of protection for end-users through the necessary sector-specific rules and by addressing the needs, such as affordable prices, of specific social groups, in particular end-users with disabilities, elderly end-users and end-users with special social needs, and choice and equivalent access for end-users with disabilities.

(e) Under the Code ComReg will also be obliged to promote efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings.

(f) It also will be obliged to promote regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods and through cooperation with other NRAs, with BEREC, and with the European Commission.

8.83 ComReg does not believe that difficulties in explaining the reason for the migration charge to end users as raised by Vodafone is sufficient to justify moving away from the policy adopted in the 2018 Pricing Decision.

8.84 In relation to the capping of charges at €100 as proposed by Sky, ComReg does not consider that this is appropriate to adopt at present as this would be an arbitrary amount unrelated to cost recovery given the existing cost of circa. €450 as referenced above (paragraph 8.74). Changing from the current price control obligation of cost orientation to a wholesale cap outside of undertaking the required market assessment would not be sound regulatory practice, particularly in terms of providing investors with certainty around making significant up-front investments as Eircom has done with its investments related to FTTH – it would no doubt be seen as a significant deterrent to future investment by Eircom and other potential investors in FTTH. Also doing so in the absence of more detailed information related to FTTH connections in the Urban Commercial Area would be premature given the uncertainty around average connection costs, take up, and other factors.

8.85 Having assessed the feedback, considered the aims of the existing FTTH connection and migration equal charging policy, and reviewed the latest data ComReg does not consider that there is any evidence that the FTTH charging approach is failing to address the competition problems that ComReg identified in the WLA market. ComReg's objective was to strike an appropriate balance between a number of competing parameters in this equation. The submissions to the call for inputs confirm that these competing parameters remain but do not give reasons to revisit the balance struck in the 2018 Pricing Decision. ComReg therefore continues to consider

that the existing policy remains consistent with ComReg's objective to promote competition and encourage efficient investment in infrastructure and promote innovation and is of the view accordingly that there should be no adjustment to the policy around equalisation of charges at this time.

8.3.3 ComReg's final position

8.86 Having considered the submissions versus the available data and the original logic behind the equalisation of charges ComReg does not consider that there is justification for intervening in the market at this point. The submissions set out dissatisfaction with the existing policy around equating the connection and migration charge, but did not provide sufficiently robust reasoning as to why this is not addressing the competition problems identified/addressed in the 2018 Pricing Decision, or what might likely result if ComReg did allow a large difference between the connection and migration charges (e.g. ComReg considers that doing so would lead to reduced connection volumes as retailers would focus on switching already FTTH connected customers rather than adding new ones). ComReg notes further that the policy adopted in the 2018 Pricing Decision is entirely consistent with ComReg's objectives from the European Electronic Communications Code and those objectives are best pursued by not revisiting ComReg's 2018 policy decision at this nascent stage of the FTTH rollout.

9 Other regulatory measures

9.1 Overview

9.1 This section sets out ComReg's final decision in relation to two issues, the annual review of models, and the price control period. These issues are discussed separately in the following two subsections, respectively, covering the position in the Consultation, Respondents' views and ComReg's assessment of same, and concluding with ComReg's final position on each issue.

9.2 Annual review of models

9.2.1 Position set out in the Consultation

9.2 In the Consultation, ComReg noted that monitoring of price control obligations can be supported through annual reviews of cost models. For example, material changes to key modelling assumptions can be assessed and the possible implications for modelled prices determined. Whether to provide for and undertake annual reviews also depends on the methodology employed in determining prices for a particular service. For Top-down prices an annual review based on Eircom's accounts is useful as the relevant Opex trends may have changed. An annual review may be less important when costs are modelled on a BU basis and the demand assumptions follow a Hypothetical Efficient Operator approach. An annual review may nonetheless still be useful even when prices are not derived on a top-down basis – in particular a review of model assumptions such as volumes, input costs, and so forth.

9.3 Question 19 was concerned with cost reconciliation for PSTN-WLR in the context of the proposed price control and is not part of this Response to Consultation and Decision.

9.4 ComReg did not propose any change in relation to the current obligations pertaining to reviewing the NGA Cost Model and the NGN Core Model – e.g. Eircom should continue to adhere to paragraph 12.20 of the 2018 Pricing Decision, in which Eircom is to "…*review the inputs, costs and assumptions of the NGN Core Model and NGA Cost Model annually. Any material/exceptional changes should be brought to the attention of ComReg for consideration*." ComReg noted the importance of predictability of pricing for investment decisions and also restated its general approach of not intervening where prices have been explicitly set. ComReg's general preference is to avoid intervening within a price control period unless circumstances are materially different from expected or other exceptional issues have arisen. ComReg was of the view that the inputs, costs, and assumptions of the ANM, should

as necessary be reviewed by Eircom annually, with any material/exceptional changes brought to the attention of ComReg for consideration.

9.5 ComReg asked Question 20 to elicit views on this matter. "*Do you agree with ComReg's preliminary view that Eircom should review the ANM annually for material / exceptional changes, and that such material/exceptional changes are brought to the attention of ComReg for consideration? Please provide reasons for your response*."

9.2.2 Respondents' views and ComReg's Assessment

Annual review of models – ANM

9.6 Three Respondents, BT, Eircom and Vodafone, responded to Question 20. BT and Vodafone agreed, while Eircom disagreed.

9.7 BT agreed with ComReg's proposal and added that ComReg should indicate the consequences of such omission as otherwise the requirement is meaningless.[547] Vodafone also agreed adding that the NGA Cost and NGN Core Models should also be included in the proposed approach due to the changes in the market since the data in these models was last updated – e.g. fibre rollout.[548]

9.8 Eircom's disagreement was focused on the practicalities of updating the ANM. Eircom noted that the ANM is complex and involves a large amount of hard-coded and redacted information and as such it was not clear how Eircom could update a redacted version of the model or determine if the changes are indeed material or exceptional and gave the example of tilted annuities.[549]

9.9 Eircom added that it would require specific guidance from ComReg on various parts of the ANM and suggested that ComReg might be best placed to conduct the review. Eircom was unclear how reviewing models would be consistent with ComReg's general approach of not intervening during a price control.[550] Eircom queried how weather conditions, which may vary year on year, and so influence costs, could be included.[551] Eircom added that it was unclear how the proposal to update the ANM was consistent with a quote from the Consultation related to cost modelling under a BU basis and also how HCA based information could be updated for a HEO.[552]

9.10 ComReg notes first, that in absence of compliance by Eircom with monitoring requirements, the full range of compliance remedies is open to ComReg. ComReg

[547] Page 11 of BT's Non-Confidential Response dated 8 January 2021.
[548] Page 11 of Vodafone's Non-Confidential Response dated 8 January 2021.
[549] Paragraphs 345 and 346 of Eircom's Non-Confidential Response dated 8 January 2021.
[550] Paragraph 347 of Eircom's Non-Confidential Response dated 8 January 2021.
[551] Paragraph 348 of Eircom's Non-Confidential Response dated 8 January 2021.
[552] Paragraphs 349 and 350 of Eircom's Non-Confidential Response dated 8 January 2021.

further notes that obligations are already in place as regards the NGA Cost Model and the NGN Core Model under the 2018 Pricing Decision and there is no need to provide here again for the same requirements.

9.11 Insofar as Eircom's concerns that it is not in the position to update the ANM, ComReg agrees that the ANM is a detailed model that makes use of data other than Eircom's and ComReg did not mean to suggest that Eircom alone would be responsible for all updating of the ANM, which would not be possible.

9.12 ComReg also recognises that Eircom's cost and demand data is becoming less relevant to the BU Scenario in the ANM that is used to provide the LLU and SLU cost inputs into the NGA Cost Model, as the anchor technology approach to service demand that underpins the NGA Cost Model is not consistent with Eircom's overlay of FTTH in the Urban Commercial Area footprint. It is also the case that the costing analysis supported by the TD scenario is becoming less significant as the volume of regulated legacy copper-based access services continues to decline. Therefore, ComReg accepts that requiring Eircom to provide data to support a detailed update of all the cost and demand data in the ANM each year would not be proportionate.

9.13 However, it is also the case that some volumetric information that Eircom considered uncertain, such as connection costs and volumes relating to the urban FTTH rollout (see Eircom's response to Questions 8 and 17), is still required to support the monitoring of Eircom's pricing obligations. Therefore, Eircom should be in a position to provide clarity on this and other pertinent information as actuals replace forecasts, and as plans are updated, so that the prices set through the ANM with reference to Eircom's incurred and forecast cost and demand data remain appropriate and to allow ComReg ensure that is the case.

9.14 Furthermore, where Eircom identifies material / exceptional changes or differences with the information provided previously to ComReg (both historic and forecast) then these should be brought to the attention of ComReg for consideration, either through the established AFI process or through separate submissions. For the avoidance of doubt this does not mean that prices derived from the ANM will be subject to annual updates. As stated in the Consultation it is ComReg's preference to avoid intervening within a price control period unless circumstances are materially different from expected or other exceptional issues have arisen.

9.15 Finally, Eircom has announced[553] that it is altering its accounting year-end; doing so is permitted under the statutory accounting rules. From a regulatory perspective this presents an issue as regards monitoring for both ComReg and Eircom. In particular there will now be an 18-month accounting year ending December 2021 before returning to a regular 12-month accounting year ending in December each

[553] https://www.eir.ie/opencms/export/sites/default/.content/pdf/IR/presentations/2020_2021/eir_Q4_FY21_results_presentation.pdf

subsequent year. ComReg reminds Eircom that Eircom is under an obligation to ensure that its charges that are set under a cost orientation price control obligation remain cost oriented and ensure that there is no material over- or under-recovery of costs across the price control period. ComReg expects that any proposal from Eircom in relation to managing its obligation will also account for the situation of changing WACC rates on an annual basis over this period of adjustment.

9.2.3 ComReg's final position

9.16 For the duration of the price control period, ComReg will review, through the established annual AFI process (or separately to that process), to what extent the data (e.g. cost and volume data) it collected from Eircom for the purposes of the final ANM has changed and consider if such changes are sufficient to warrant an update of the ANM.[554]

9.3 Price control period

9.3.1 Position set out in the Consultation

9.17 In the Consultation, ComReg proposed that prices directed in respect of WLA and WCA services under the 2018 WLA/WCA Market Review Decision and the 2018 Pricing Decision should run until 30 June 2024 allowing for sufficient time for the market to further develop. Further proposals were made as regards the price controls for PSTN-WLR and the supplemental charge for POTS based FTTC; as the Decision does not address these price controls, the position in the Consultation and Respondents' submissions are not considered any further.

9.18 By Question 21, ComReg sought views on its proposal that the price control periods that should apply for WLA and WCA services would extend until 30 June 2024 but in any event persist until further notice by ComReg.

9.3.2 Respondents' views and ComReg's Assessment

9.19 Three Respondents, BT, Eircom and Vodafone, responded to question 21. Vodafone and Eircom disagreed, BT neither agreed nor disagreed.

9.20 Eircom did not agree that the price control period for WLA and WCA should run until June 2024 and stated that ComReg should undertake a new market analysis as there have been changes in the market since it was last concluded. Eircom also commented that a revised market analysis should be concluded by November 2023.[555] Eircom expressed several concerns related to market analyses conducted

[554] With respect to any changes, it remains ComReg's general preference to avoid intervening within a price control period unless circumstances are materially different from expected or other exceptional issues have arisen.
[555] Paragraph 353 Eircom's Non-Confidential Response dated 8 January 2021.

by ComReg including concerns with ComReg's timely delivery of market reviews, the way remedies are implemented and their complexity, and with the imposition of price remedies beyond the market review period or in perpetuity.[556] According to Eircom, the Irish market is a 'laggard' in terms of applying regulatory best practice due to delays in ComReg, and sought that ComReg should set the price path to 30 November 2023 so as to signal to interested parties that ComReg would "*undertake its market assessment on time*".[557]

9.21 Vodafone also disagreed with ComReg's proposal unless ComReg were to alter the parameters and inputs in the NGA and NGN models to adjust demand, Capex, and Opex for FTTC in light of market changes. Vodafone noted that ComReg set prices under the 2018 Pricing Decision to June 2022 with no prices to 2024. Vodafone urged ComReg to update the data behind FTTC so that ComReg's prices would be consistent with ComReg's policy of updating models where circumstances were materially different / exceptional issues have arisen, and noted that the changes in the market since 2016 should be reflected in the FTTC prices. Vodafone concluded that the next market review should be started now to avoid delays.[558]

9.22 ComReg notes first that in the 2018 Pricing Decision, ComReg did provide indicative prices for the period 1 July 2022 to 30 June 2024. See paragraph 14.5 of the 2018 Pricing Decision. Further, the Decision Instruments in that Decision[559] are clear that the price controls remain in force until further notice by ComReg (i.e. this Decision).

9.23 As regards market analyses and price reviews, ComReg notes that a significant cause for delayed reviews has been data restatements by, amongst others, Eircom itself. ComReg does not believe that attaching a specific end date to WLA/WCA prices is necessary or appropriate and where Eircom is concerned that directed prices under an obligation of cost orientation may no longer be cost oriented, Eircom may make submissions to ComReg. Attaching an end date to a price control would generate uncertainty within the market which ComReg can easily avoid by proceeding as planned. ComReg notes that the review of the WLA and WCA markets is a work item on the ComReg annual action plan due for public consultation by Q2 2022,[560] and that the price control period to 30 June 2024 is consistent with the completion (by way of notification to the European Commission) of the market review for the WLA and Regional WCA Markets in November 2023.

9.24 ComReg has as part of this price setting exercise reviewed key parameters in the NGA Cost and NGN Core Models. See Section 6.7.2 where ComReg detail what has

[556] Paragraphs 354 to 356 Eircom's Non-Confidential Response dated 8 January 2021.
[557] Paragraph 357 Eircom's Non-Confidential Response dated 8 January 2021.
[558] Page 11 Vodafone's Non-Confidential Response dated 8 January 2021.
[559] See Section 13.1 of Annex 1, and Section 12.1 of Annex 2.
[560] https://www.comreg.ie/about/strategy/action-plan/

been done in relation to this (including noting the comments from Respondents regarding updated data).

9.25 ComReg is also satisfied that the approach it has followed in respect of FTTC is consistent with its policy that intervention in a price control period is only warranted in exceptional circumstances. As explained in the Consultation (see paragraphs 6.70 to 6.82) and in Section 6.7.2 of this Decision, ComReg does not consider that a review of the NGA Cost and NGN Core Models, other than to reflect the WACC, is justified now in the absence of exceptional circumstances.

9.3.3 ComReg's final position

9.26 ComReg has decided that the prices should be imposed for the duration of the relevant market analysis period (for WLA and WCA services) and should run until 30 June 2024, but in any event, the price controls will remain in place until further notice by ComReg.

Annex 1: Non-Confidential Submissions to Consultation 20/101 and Consultation 20/81

A 1.1 The non-confidential Submissions made by the five Respondents to the Consultation, as well as the eight Respondents to the 2020 CEI Pricing Consultation, have been published alongside this Decision, as ComReg Document 21/130s.

A 1.2 ComReg has also published the three non-confidential reports prepared on Eircom's, Sky's, and Vodafone's behalf in relation to the Consultation, as well as the two non-confidential reports prepared on behalf of Eircom and NBI in relation the 2020 CEI Pricing Consultation. These too are contained in ComReg Document 21/130s.

Annex 2: Dot Econs' Note in relation to common costs

A 2.1 Dot Econs' note in relation to common corporate costs has been published alongside this Decision.

Annex 3: TERA Consultants' Note

A 3.1 TERA Consultants' note has been published alongside this Decision.

Annex 4: Submissions on the Draft Decision Instruments

A 4.1 In the Consultation, ComReg set out three draft Decision Instruments ('**DIs**'), to enable stakeholders to understand how the proposals contained in the Consultation would amend the existing DIs in the 2018 WLA/WCA Market Review Decision, the 2018 Pricing Decision, and the proposed 2020 FACO Market Review Consultation.

A 4.2 By Questions 23, 24, and 25, ComReg sought views on its drafting of the proposed DIs, to investigate if stakeholders considered that they were from a legal, technical and practical perspective sufficiently detailed, clear, and precise with regards to the specifics proposed.

A 4.3 Two Respondents, BT, and Eircom, replied on these questions, with specific observations on the drafting. As elsewhere in this Decision, and noted in paragraph 1.15, ComReg is not addressing points raised in relation to FACO (Question 25 on the draft FACO DI).

A 4.4 In reviewing the submissions to these questions a number of points were repeated by Eircom across both Question 23 and 24. ComReg's assesses such common points together first and then addresses the more specific points. Common points from Eircom included: effective date; notification; delineation of areas; powers under which ComReg is acting;

A 4.5 Eircom agreed that the time outlined in the draft DI to the effective date of prices provided "*sufficient time for the changes to be implemented*".[561] ComReg notes Eircom's agreement.

A 4.6 Eircom were unclear on the notification of the Decisions and queried the notifications effectiveness.[562] ComReg notes Eircom's observation, and reassures Eircom that the effective date of the DI is the date of its notification to Eircom.

A 4.7 Eircom outlined that it considered the definition of DECC's "High Speed Broadband Map" was incorrect as DECC now no longer differentiates areas between blue and light blue,[563] and in related points, queried the definition of the Urban and Rural Commercial footprints (these have been addressed earlier in this Decision (see Section 3.4)). ComReg notes the comments from Eircom and

[561] Paragraphs 419, and 432 of Eircom's Non-Confidential Response dated 8 January 2021.
[562] Paragraphs 426 and 440 of Eircom's Non-Confidential Response dated 8 January 2021.
[563] Paragraphs 420 to 422, and 434 to 436 of Eircom's Non-Confidential Response dated 8 January 2021.

adjustments have been made to the definition sections of the DIs to provide greater clarity.

A 4.8 Eircom noted that ComReg, in the DIs, reference ComReg acting pursuant to its powers under current Regulations and simply referring to the EECC is not sufficient. Eircom suggest that ComReg should replace Section 1 of the draft DI and further consult.[564] ComReg disagrees. Transposition of the EECC has been delayed and ComReg continues to act pursuant to current Regulations whilst also having regard to the EECC, including for example, Article 32 in respect of notification to the European Commission, BEREC and the National Regulatory Authorities of other Member States of draft measures proposed to be adopted and taking utmost account of comments made by those parties following notification.

A 4.9 Eircom in relation to Section 5 of the DI in Annex 1 of the Consultation, considered that ComReg's proposal to impose a requirement that prices may be amended as appropriate was "*contrary to the principle of promoting regulatory predictability*", and doing so could only be progressed following a proper consultation process and notification under Articles 6 and 7 of the Framework Directive.[565] As discussed in Section 5.3 ComReg considers that it has consulted as required, and does not consider that the addition of this text as proposed in the Consultation was inappropriate or could be construed as a change in the price control, rather, the inclusion of this text was to clarify that modelled prices can and may change where warranted to ensure the obligation of cost orientation is complied with. See Section 9 for further information on updates to prices.

A 4.10 Eircom considered that Section 1 was deficient as it omitted reference to the fact that it is also acting pursuant to its powers to undertake market analysis and define economic markets, which should be corrected. ComReg disagrees. As noted in Section 2, ComReg did not consult on the form of the price control obligations that are in place in respect of the wholesale access services in the 2018 WLA/WCA Market Review Decision or the 2018 Pricing Decision. The nature of these controls remains unchanged. Rather, the Consultation proposed updates to prices derived from the ANM (and NGA Cost Model and NGN Core Model), based on the existing cost-orientation obligations. In this Decision, these principles are maintained and implemented in the ANM.

A 4.11 BT noted in its response to Question 23 that the draft DIs made specific reference that no additional pricing should apply, and where new charges are introduced then they should be "*published in the appropriate and transparent price list with the appropriate notification's periods.*"[566] Eircom disagreed on this point in the draft DIs, considering that it was not discussed in the text and was unclear how it would

[564] Paragraphs 417 and 428 of Eircom's Non-Confidential Response dated 8 January 2021.
[565] Paragraphs 423 and 424 of Eircom's Non-Confidential Response dated 8 January 2021.
[566] Page 12 of BT's Non-Confidential Response dated 8 January 2021.

be applied in practice. Eircom also noted that it related solely to recurring rental charges and would "*not impact on other legitimate charges that are already established in respect of connections, migrations and other related ancillary services*".[567]

A 4.12 ComReg inserted such text for the avoidance of doubt in relation to recurring rental charges. Eircom is only permitted to charge prices for its regulated access services in accordance with this Decision. Other charges are required to comply with, insofar as they are within the regulated markets where Eircom has SMP, the price controls that apply to those other regulated ancillary services.

A 4.13 Eircom considered that the DI prepared in relation to the 2018 Pricing Decision (D11/18) did not make reference to "*properly notifying the draft measure to the EC, BEREC, and NRAs as required*", and any amendment to an existing remedy must be notified to the EC.[568] ComReg notes Eircom's observations and will comply with the requirements regarding notification.

A 4.14 Eircom considered that the exchanges for the calculation of FTTC Bitstream prices should only be those in the Regional WCA which are part of the Urban Commercial Area footprint.[569] ComReg disagree, and this has been addressed earlier by ComReg in Section 6.7. In a related point, Eircom added that the Regional WCA should be updated to reflect the WCA Market Mid-term Assessment.[570] ComReg has done so throughout the ANM – e.g. Sections 5.4 and 6.7.

A 4.15 Eircom sought clarification as to whether the prices in the Consultation were point prices or maximum prices, as it noted that the wording differed in Annex 2 to Annex 1. ComReg confirms that the prices of concern in Section 6 of Annex 2 (in relation to FTTC VUA) of the Consultation are point prices.[571]

[567] Paragraph 425 of Eircom's Non-Confidential Response dated 8 January 2021.
[568] Paragraphs 429 to 431 of Eircom's Non-Confidential Response dated 8 January 2021.
[569] Paragraph 437 of Eircom's Non-Confidential Response dated 8 January 2021.
[570] Paragraph 433 of Eircom's Non-Confidential Response dated 8 January 2021.
[571] Paragraph 438 of Eircom's Non-Confidential Response dated 8 January 2021.

Annex 5: EC response to ComReg's notified draft measures

EUROPEAN COMMISSION

Brussels, 19.11.2021
C(2021) 8545 final

Commission for Communications
Regulation (ComReg)

One Dockland Central, Guild Street
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Ireland

For the attention of:
Mr Garrett Blaney
Chairperson of the Commission

Fax: +35318049665

Subject: **Case IE/2021/2345: Cost model for fixed infrastructure and remedies for access products in Ireland including estimation of the WACC**

Commission comments pursuant to Article 32(3) of Directive (EU) 2018/1972

Dear Mr Blaney,

1. PROCEDURE

On 22/10/2021, the Commission registered a notification from the Irish national regulatory authority (NRA), Commission for Communications Regulation (ComReg)][1], concerning the latest cost model ComReg will rely on when setting prices for an array of access products in the fixed infrastructure market. The notification also proposed a number of price-remedies in market 1 and 3.b[2] and an update of the WACC value.

[1] Pursuant to Article 32 of Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (the Code) (OJ L 321, 17.12.2018, p. 36).

[2] Corresponding to market 3.a and 3.b in Commission Recommendation 2014/710/EU of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) (2014 Recommendation on Relevant

The national consultation[3] ran from 22 October 2020 to 8 January 2021.

The Commission sent a request for information (RFI)[4] to ComReg on 29 October, and received a reply on 3 November 2021. An additional request for information was sent on 4 November to which a reply arrived on 8 November 2021.

Under Article 32(3) of the Code, NRAs, the Body of European Regulators for Electronic Communications (BEREC) and the Commission may make comments on notified draft measures to the NRA concerned.

2. DESCRIPTION OF THE DRAFT MEASURE

The current notification concerns the update of three elements:

1) Cost model;

2) Access prices derived from the updated cost model, and

3) WACC value.

ComReg has notified the updated cost model, acting as foundation when determining the prices for a number of access products, including wholesale local and central access (WLA/WCA), FTTC virtual unbundled access (VUA), FTTC bitstream and dark fibre. This updated cost model uses a WACC value ComReg has updated using the methodology it notified in case IE/2020/2250.

2.1. Background

The markets under investigation were previously notified to and assessed by the Commission:

- WLA and WCA in case IE/2018/2089-2090[5]
- FTTC VUA and bitstream in case IE/2018/2115[6].

The two cases used the two cost models – the next generation network core model (NGN) and the revised copper access model (revised CAM).

The Commission commented on both notifications, especially case IE/2018/2089-2090, in which it urged ComReg to update the costing inputs used in the model and

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Markets) (OJ L 295, 11.10.2014, p. 79). Market 3.b has been removed from the list of the relevant markets that may warrant *ex ante* regulation in Commission Recommendation (EU) 2020/2245 of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with the Code (2020 Recommendation on Relevant Markets) (OJ L 439, 29.12.2020, p. 23).

3 In accordance with Article 23 of the Code.

4 In accordance with Article 20(2) of the Code.

5 C(2018) 4786.

6 C(2018) 6788.

update a number of access prices that had either been set long ago or were based on outdated input(s).

On the WACC, in 2020 ComReg notified in case IE/2020/2250 an updated methodology that defined a WACC value of 5.61%, replacing 8.18%, the value applicable at the time. The updated method followed partially the methodology outlined in the WACC Notice[7] (the Notice) published by the Commission and the accompanying BEREC report[8] estimating the relevant parameters for 2020. In its methodology, ComReg either uses its previous method for estimating a specific parameter, or a combination of the previous method and the one outlined in the Notice.

Although ComReg's WACC method deviated substantially from the one outlined in the Notice, the Commission refrained from making specific comments about the parameters and their estimations, as the methodology notified arrived before the actual application of the Notice. Furthermore, the notification applied within the one-year transitional period envisaged in the Notice, giving the Commission a period in which its assessment of WACC methodologies would not be fully bound by the Notice [9].

In light of this, the Commission commented in case IE/2020/2250 on the obligations it was under when reviewing future notifications containing a WACC value or access prices for legacy infrastructure on the basis of the principles set out in the Notice. It stated that ComReg *should* take account of the methodology applied by the Commission on the basis of the Notice for notifications arriving after 1 July 2021.

The Commission also commented on the need to swiftly update regulated prices, given the large drop in the WACC from 8.18% to 5.61%.

2.2. Regulatory remedies

Cost model

The notified measure relates mainly to a new cost model (the access network model, ANM). The model enables ComReg to estimate a number of costs related to the access network. It replaces the revised CAM, as it was outdated and only included copper-based demand.

Beyond the addition of fibre, the ANM takes into account key market developments in Ireland, including migration to fibre, copper switch-off, fibre deployment by the incumbent Eircom, etc. The model also takes into account the three different

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7 Commission Notice on the calculation of the cost of capital for legacy infrastructure in the context of the Commission's review of national notifications in the EU electronic communications sector, 2019/C 375/01.

8 BEREC Report on WACC parameter calculations according to the European Commission's WACC Notice 2020 – BoR (20) 116.

9 The Notice became applicable on 1 July 2020 and the transitional period lasted until 1 July 2021.

geographic areas as defined by ComReg: the National Broadband Plan (NBP) intervention area (NBP IA)[10], urban commercial areas and rural commercial areas.

The ANM enables ComReg to estimate costs for LLU, SLU, line share, dark fibre, current generation standalone broadband (CG SABB) and for civil engineering infrastructure (CEI) services[11]. In its response to the RFI, ComReg further clarified that the ANM produces outputs used when estimating FTTC prices using ComReg's next generation access (NGA) cost model and NGN core model. Although FTTC prices are part of this notification, the NGN and NGA models are not, as they are separate models. ComReg points out that it has updated some inputs, where relevant, in the NGN and NGA models as part of this notification.

Updated prices

This notified draft measure proposes updating the applicable prices resulting from the ANM, which generally follows the modelling principles used in the past.

Besides the updated model, ComReg is also implementing a series of changes to certain products in how they are calculated. For instance, the urban area is now the reference when calculating the LLU and SLU. This contrasts with the 'distance-dependent approach' used in the previous revised CAM. Also, as shown below, the 2022 dark fibre prices no longer use a cost division between Dublin and provincial areas. This, as well as other technical changes, are being implemented as a result both of the changes observed in the market and the new possibilities ANM offers.

The notified draft measure, together with ComReg's reply to the RFI, presents the prices estimated and the current price:

Service	€			
	Current Price	*1 [month] 2022 – 30 June 2022*	*1 July 2022 – 30 June 2023*	*1 July 2023 – 30 June 2024*
LLU	11.52	12.79	13.14	14.05
SLU	6.12	10.03	10.18	10.68
Line share	0.77	0.62	0.62	0.62
Dark fibre	0.28 Dublin, 0.15 Provincial	0.12	0.12	0.11

[10] National Broadband Plan intervention area. The Irish Government has a contract with National Broadband Ireland (NBI) to deliver fibre connections to premises where no commercial roll-out is planned. These areas are referred to as intervention areas, which is why the NBP IA covers them.

[11] Prices for CEI are not part of this notification. They are assessed by the Commission under case IE/2021/2344.

Service	CG SABB - €		
	1 [month] 2022 – 30 June 2022	*1 July 2022 – 30 June 2023*	*1 July 2023 – 30 June 2024*
CG SABB: National handover:			
Per port	25.37	25.33	25.69
Per Mbps	0.44	0.37	0.33
CG SABB: Regional handover:			
Per port	23.78	23.73	24.10
Per Mbps	0.19	0.16	0.14

Service	CG Bitstream - €			
	Current Price	*1 [month] 2022 – 30 June 2022*	*1 July 2022 – 30 June 2023*	*1 July 2023 – 30 June 2024*
BMB: National handover:				
Per port	8.88	7.94	8.12	8.36
Per Mbps	0.47	0.44	0.37	0.33
BMB: Regional handover:				
Per port	6.97	6.41	6.47	6.58
Per Mbps	0.20	0.19	0.16	0.14
Bitstream IP: National Handover:				
Bitstream IP	9.37	8.28	8.41	8.61
Bitstream IP: Regional Handover:				
Bitstream IP	7.17	6.55	6.59	6.69

Service	FTTC based services - €			
	Current Price	*1 [month] 2022 – 30 June 2022*	*1 July 2022 - 30 June 2023*	*1 July 2023 - 30 June 2024*
FTTC based VUA	20.36	18.36	18.54	19.12
FTTC based Bitstream: National handover:				
Per port	25.27	22.19	22.48	23.24
Per Mbps	0.31	0.29	0.27	0.27
FTTC based Bitstream: Regional handover:				
Per port	22.68	20.20	20.42	21.08
Per Mbps	0.12	0.11	0.11	0.11
Assumed 90/10 mix for Regional / National Handover				
Per port	22.93	20.40	20.63	21.29
Per Mbps	0.14	0.13	0.12	0.12

The tables above show that there will be a slight increase in the years ahead in LLU and SLU prices, which according to ComReg also reflects that the line base is capable of providing FTTC-based services. For CG SABB and CG bitstream, the prices notified are rather stable compared to current prices.

The updated cost model for FTTC-based services results in an initial drop in 2022, before slightly increasing the following years. However, for all FTTC-based products, 2023-2024 prices remain below their 2021 levels.

WACC

In 2020 ComReg updated the WACC methodology, to partially take into account the Notice. This resulted in a WACC value of 5.61. Using the same method for the current notification, ComReg updated the input values and derived a WACC of 5.56%.

For the 2020 method, ComReg used a combination of its own data and data from the latest BEREC report[12]. For instance, the cost of equity was found using two methodologies, one based on the Commission Notice and the other based on ComReg's current WACC methodology (IE/2014/1649)[13], with values updated to reflect current conditions. ComReg thus estimates two values for costs of equity and takes the average of the two as input for the final WACC value (see below).

Regarding the cost of debt, ComReg calculates this according to four different approaches and evaluates the results and methods before choosing one for the setting of the WACC.

In its reply to the RFI, ComReg provided further details of its calculations and clarified that the method used deviates from the one outlined in the Notice when estimating the risk-free rate, equity risk premium (ERP), gearing, beta values and debt premium. ComReg arrives at the parameters presented below:

	ComReg Doc. 21/68a[3]	
	Modified Commission Notice Approach	
Parameter	(lower bound ERP)	(upper bound ERP)
Corporation tax	12.5%	12.5%
Nominal risk free rate	0.52%	0.52%
ERP	**7.26%**	**8.06%**
Asset beta	0.48	0.48
Gearing	40%	40%
Equity Beta	0.80	0.80
Nominal cost of equity post tax	6.33%	6.97%
64th percentile[9]	0.41%	
Post tax cost of equity (ComReg 21/68)	6.74%	
Debt premium	1.83%	
Nominal cost of debt pre tax	2.35%	
Nominal pre-tax WACC	5.56%	

To clarify its approach, ComReg mainly repeats the arguments it presented in 2020, arguing that the national circumstances in Ireland justify the deviation from the Notice. One main area of difference is the ERP, where ComReg uses as a metric total market return (TMR). This it finds more suitable for Ireland, mainly because the Notice methodology results in a very low cost of equity.

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12 BEREC Report on WACC parameter calculations according to the European Commission's WACC Notice, BoR (21) 86.

13 In this approach, the nominal risk free rate (RFR) is estimated on the basis of forecasts taking account of Irish and EU GDP growth and inflation. The ERP is derived from the Dimson, Marsh and Stanton-based TMR, but only the Irish TMR. This means that the resulting values differ slightly from those derived using the 'Commission Notice' approach. Inflation is based on a blend of Irish and European Central Bank forecasts, with the former being used for the short term (2 years) and the latter for the long term. The asset beta comes from a two-year data series based on daily observations. Gearing and tax are the same for the two approaches.

In its reply to the RFI, ComReg also gives information about the values that would have prevailed for Ireland, if it had followed the Notice. From this, one can see the relevant values for Ireland as estimated by BEREC in accordance with the Notice, for instance the ERP (5.5%), the debt premium (1.15%) and the nominal cost of equity (4.63%) resulting in the nominal pre-tax WACC of 3.86%[14].

ComReg further specifies that it considers that all access products for which this notification sets prices fall within the scope of the Notice, except for dark fibre.

3. COMMENTS

The Commission has examined the notification and the additional information provided by ComReg and has the following comments[15].

3.1. Deviation from the WACC Notice

ComReg argues that national specificities fully justify the deviation from the WACC Notice and maintains its methodology. This course of action does not heed the Commission comments expressed in case IE/2020/2250.

Using the method notified to the Commission, ComReg arrives at a WACC value of 5.56%. When comparing this with the values estimated in other Member States, the Commission points out significant differences, for example in France (4.8%) and Spain (4.82%). It also notes that such a significant difference in the WACC value derived by ComReg, of 0.7 pp (or around 15%) above that applied for instance in France or Spain, cannot be explained by objective differences in market conditions.

In this regard, the Commission urges ComReg to reconsider whether its approach for the WACC correctly reflects market conditions in Ireland, in particular when compared to the values of other Member States. The differences in the WACC values between various Member States, unrelated to the prevailing economic conditions but rather due to arbitrary assumptions and approaches, lead to a lack of harmonisation between Member States, hampering the development of the internal market.

3.2. WACC updates should be notified when used for the first time

The Commission welcomes the yearly update of the WACC value and the principle of using the most recent value when setting prices. Using an updated WACC value

14 Within the methodology outlined in the Notice, NRAs have a certain amount of discretion to account for national circumstances. This includes options when applying the parameters estimated by BEREC. The figure 3.86%, provided as an example by ComReg, is the resulting Irish value when using the 2021 BEREC report, using an arithmetic average and the full peer group. It is therefore not necessarily a reflection of the final value ComReg would apply if following the methodology outlined in the Notice.

15 In accordance with Article 32(3) of the Code.

ensures that prices are set in accordance with current market conditions. In this respect, the Commission draws to ComReg's attention that any price notification using an updated WACC value should be accompanied by the calculation of the WACC value itself (if the specific value used was not notified previously as a standalone measure).

3.3. Ensuring the right basis for the cost model

The Commission takes note of the amount of work done by ComReg and its consultants in the construction of the cost model. It also takes note of the significant feedback received by stakeholders on the model during the public consultation. In this feedback, the Commission takes note of several areas where both incumbents and access seekers called into question the calculations and estimations arrived at using the newly developed ANM. In a process such as the one notified here, differences between parties are to be expected. However, these differences should be limited to assumptions and preferred paths chosen rather than the technical implications of said assumptions and paths. As such, the model should not contain inconsistencies or mathematical mistakes, as appears to be the case here. The model should also ensure that the products modelled reflect their actual use and application, so that cost allocation correctly reflects how the products are consumed.

The Commission takes note of the feedback received in the consultation as well as ComReg's explanations of areas addressed after the consultation on the model in 2020. Still, given the significance of the model, the impact on the market and the substantial feedback received, the Commission would encourage ComReg to ensure, in close collaboration with stakeholders, that all technical and mathematical elements are implemented correctly and as intended by ComReg. This in turn should ensure that all stakeholders have confidence in the basis for the cost model and the reliability of its results, and consequently in the prices derived from it.

Under Article 32(8) of the Code, ComReg shall take utmost account of the comments of other NRAs, BEREC and the Commission and may adopt the resulting draft measure. Where it does so, the NRA shall communicate it to the Commission.

The Commission's position on this particular notification is without prejudice to any position it may take on other notified draft measures.

Pursuant to Point 6 of Recommendation 2021/554[16] the Commission will publish this document on its website. If ComReg considers that, in accordance with EU and national rules on business confidentiality, this document contains confidential information that

[16] Commission Recommendation (EU) 2021/554 of 30 March 2021 on the form, content, time limits and level of detail to be given in notifications under the procedures set out in Article 32 of Directive (EU) 2018/1972 of the European Parliament and of the Council establishing the European Electronic Communications Code OJ L 112, 31.3.2021, p. 5.

you wish to have deleted prior to publication, please inform the Commission[17] within three working days of receipt[18]. Please give reasons for any such request.

Yours sincerely,

For the Commission
Roberto Viola
Director-General

CERTIFIED COPY
For the Secretary-General

Martine DEPREZ
Director
Decision-making & Collegiality
EUROPEAN COMMISSION

17 By email: CNECT-markets-notifications@ec.europa.eu

18 The Commission may inform the public of the result of its assessment before the end of this three-day period.

Annex 6: ComReg's consideration of EC response to ComReg's notified draft measures

Comment 3.1 Deviation from the WACC Notice

A 6.1 ComReg notes the position set out in the EC's Comments Letter dated 19 November 2021 regarding the methodology used to calculate the Fixed Line WACC value for Ireland as compared with the methodology set out in the EC's WACC Notice.[572]

A 6.2 The WACC rate for Fixed Line has been updated to 5.56% following a mechanical application in June 2021 of the methodology set out in ComReg's 2020 WACC Decision, notified to the EC in advance of the 2020 WACC Decision. This updated WACC rate of 5.56% is used to set prices in this Decision following the approach decided upon in the 2020 WACC Decision of using the most up-to-date WACC rate in subsequent pricing decisions. In deriving this updated WACC rate ComReg has continued to have full regard to the (non-binding) EC's WACC Notice (as ComReg also did in the 2020 WACC Decision).

A 6.3 ComReg continues to consider that its WACC methodology adopted in the 2020 WACC Decision is more suitable for the Irish market than the methodology set out in the EC's WACC Notice, and that differences between the WACC rate adopted by ComReg and the WACCs applicable in other EU Member States are justified in ComReg's view by differences in market conditions.

A 6.4 As explained in Section 4.4.2.1 of the Europe Economics report[573], which informed the 2020 WACC Decision, "[…] *a literal implementation of the EC approach regarding TMR and ERP is problematic for a number of reasons. The long-term historical series used to estimate the ERP (such as those provided by DMS) cover periods in which government bonds yields were materially higher than the yields levels observed in recent years. This means that an approach which relies on recent bonds market data to estimate the risk free rate and then use of long-term historical estimates of the ERP necessarily results in an implausibly low TMR estimate*. […] *In our view, such an approach is consistent with the spirit of the EC Notice in being implementable by NRAs on a common methodological basis. According to the latest DMS figures[49] the real TMR for Europe is 6.0 per cent whilst*

[572] Commission Notice on the calculation of the cost of capital for legacy infrastructure in the context of the Commission's review of national notifications in the EU electronic communications sector, 2019/C 375/01, dated 6 November 2019 - https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=62833

[573] https://www.comreg.ie/publication/the-cost-of-capital-for-the-irish-communications-sector-final-report

the real TMR for Ireland is 6.7 per cent."

A 6.5 In respect of the EC's comment that differences between the WACCs of both France (4.8%) and Spain (4.82%) and Ireland (5.56%) *"*[…] *cannot be explained by objective differences in market conditions",* ComReg notes that as commented in the Report from Europe Economics (see Annex 9) this can be considered in three elements:

- Cost of Equity - over the period 1900 to 2020 total market returns for Ireland has been consistently higher than those for France and Spain. That justifies the Irish decision embodying a total market return materially higher than those for France and Spain. That difference in nominal total market return (8.03% to 8.18% per cent in Ireland's decision versus 5.87% and 6.51% for France and Spain respectively) account for almost the entirety of the difference between the post-tax WACC decisions for Ireland and France and the considerable majority of the difference between the decisions for Ireland and Spain.

- Taxation – the corporation tax rates for each of the three countries are different and in order to compare ComReg has adjusted both France and Spain for the Irish corporation tax rate of 12.5% without altering other inputs.

- Cost of debt – with the taxation adjustment the Irish cost of debt is 2.35% whereas those of France and Spain, on a comparable basis to Ireland are 1.81% and 2.16% respectively.

A 6.6 Therefore, the majority of the difference between Ireland, France and Spain is a result of historical differences in total market returns and in light of those differences, ComReg considers that the approach set out in the 2020 WACC Decision remains more appropriate for Ireland.

Comment 3.2 WACC updates should be notified when used for the first time

A 6.4 ComReg notes that the EC welcomes the yearly update of the WACC value and the principle of using the most recent value when setting prices and agrees that using an updated WACC value ensures that prices are set in accordance with current market conditions. ComReg also notes the request set out in the EC's Comments Letter that any price notification using an updated WACC value should be accompanied by the calculation of the WACC value itself (if not already notified separately).

A 6.5 ComReg will ensure that this request is satisfied in future pricing notifications.

Comment 3.3 Ensuring the right basis for the cost model

A 6.6 The EC's Comments Letter outlines in its third comment on the ANM a number of observations in relation to "*ensuring the right basis for the cost model*".

A 6.7 Briefly, the EC suggests among others that:

> "*…, these differences should be limited to assumptions and preferred paths chosen rather than the technical implications of said assumptions and paths. As such, the model should not contain inconsistencies or mathematical mistakes, as appears to be the case here.*
>
> *The model should also ensure that the products modelled reflect their actual use and application, so that cost allocation correctly reflects how the products are consumed.*
>
> *Still, given the significance of the model, the impact on the market and the substantial feedback received, the Commission would encourage ComReg to ensure, in close collaboration with stakeholders, that all technical and mathematical elements are implemented correctly and as intended by ComReg.*
>
> *This in turn should ensure that all stakeholders have confidence in the basis for the cost model and the reliability of its results, and consequently in the prices derived from it*."

A 6.8 In circumstances where no queries or observations in line with the above were raised by the EC on the ANM model with ComReg during the notification period, ComReg is at a loss to understand those comments and notes that no specific examples to underpin these observations are provided. The comments are general in nature and do not identify any particular technical or mathematical elements that are cause for concerns of error, or any concerns with modelling and calculation of costs for specific products. ComReg also does not understand what "preferred paths" refer to.

A 6.9 For the avoidance of doubt, ComReg is satisfied that to the extent possible, all technical and mathematical elements of the models used in the Decision are implemented correctly and as intended by ComReg.

A 6.10 ComReg is also satisfied that in developing the ANM and finalising its ANM Pricing Decision, ComReg has met, and in fact exceeded, applicable consultation and transparency requirements. ComReg, in particular, in addition to submitting its draft Decision to consultation, provided stakeholders with access to the draft version of the ANM (including supporting documentation) and responded during the Consultation to queries from operators on the functionality and assumptions of the model. ComReg has considered all comments, including of mathematical or modelling nature, and issues raised by operators as part of the Consultation

and updated the ANM where appropriate, and amendments made are documented and justified in the Decision. Following this process, ComReg is satisfied that no outstanding material concerns raised by stakeholders remain to be addressed. ComReg also notes that the EC acknowledges ComReg's explanations of areas addressed after the Consultation on the model in 2020.

A 6.11 In this context, in circumstances where stakeholders have been given the opportunity to make submissions in respect of the model itself in addition to the proposed decision, it is unclear to ComReg what further action is envisaged by the EC when in its Comments Letter it appears to suggest that the ANM should be finalised *"in close collaboration with stakeholders".* ComReg does not understand that the EC is suggesting further engagement with stakeholders as regards the computation of applicable prices, a matter which by nature would not be appropriate for industry-wide cooperation.

A 6.12 In light of the above and noting that as a matter of procedure, ComReg, having received the EC's Comments Letter within one month of notification of its draft measure (being the draft ANM Pricing Decision), ComReg may now, in accordance with Article 33 EECC, proceed with its adoption, ComReg is satisfied that it is appropriate to finalise the ANM and adopt the ANM Pricing Decision.

Annex 7: Decision Instrument: Price controls in the WLA and WCA Markets (ComReg Decision D10/18)

1 STATUTORY POWERS GIVING RISE TO THIS DECISION INSTRUMENT

1.1 This Decision Instrument ("Decision Instrument") is made by the Commission for Communications Regulation ("ComReg") for the purpose of amending the specifications, or further specifying, the price controls set out in the WLA and WCA Decision Instruments respectively at Annex 20 and Annex 21 of ComReg Decision D10/18.

1.2 This Decision Instrument is made:

(i) Pursuant to Regulation 18 of the Access Regulations;

(ii) Pursuant to, and having regard to, the significant market power (SMP) designation of Eircom as provided for in Section 5 of the WLA Decision Instrument

(iii) Pursuant to, and having regard to, the significant market power (SMP) designation of Eircom as provided for in Section 5 of the WCA Decision Instrument;

(iv) Pursuant to the cost orientation price control obligation, imposed pursuant to Regulation 8 and Regulation 13 of the Access Regulations in Section 12.2 of the WLA Decision Instrument;

(v) Pursuant to the cost orientation price control obligation imposed pursuant to Regulation 8 and Regulation 13 of the Access Regulations in Section 12.2 of the WCA Decision Instrument;

(vi) Pursuant to Regulation 13(4) of the Access Regulations;

(vii) Pursuant to and having regard to the 2020 WACC Decision;

(viii) Pursuant to Section 10.12 of the WLA Decision Instrument;

(ix) Pursuant to Section 10.11 of the WCA Decision Instrument;

(x) Having had regard to Sections 10 and 12 of the Communications Regulation Act 2002 (as amended), Regulation 16 of the Framework Regulations and Regulations 6, 8, and 13 of the Access Regulations;

(xi) Having, pursuant to Section 13 of the Communications Regulation Act 2002 (as amended), complied with Ministerial Policy Directions where applicable;

(xii) Having taken utmost account of the European Commission's 2010 Recommendation and 2013 Recommendation;

(xiii) Having regard to the provisions contained in the European Electronic Communications Code;

(xiv) Having notified the draft measure and the reasoning on which the measure is based to the European Commission, BEREC and the national regulatory authorities in other EU Member States pursuant to Regulation 13 and Regulation 14 of the Framework Regulations, Article 32 of the European Electronic Communications Code and having taken account of any comments made by these parties;

(xv) Having had regard to the analysis and reasoning set out in ComReg Decision D10/18;

(xvi) Having had regard to the analysis and reasoning set out in ComReg Document No. 20/101 and having taken account of the submissions received from interested parties in response thereto following a public consultation pursuant to Regulation 12 of the Framework Regulations;

(xvii) Having had regard to the analysis and reasoning set out in ComReg Decision D11/21.

1.3 This Decision Instrument shall, where appropriate, be construed consistently with the provisions of ComReg Decision D10/18, ComReg Document No. 18/94, ComReg Decision D11/18, ComReg Document No. 18/95, and ComReg Decision D11/21, ComReg Document No. 21/130.

PART I - GENERAL PROVISIONS

2 DEFINITIONS

2.1 In this Decision Instrument, unless the context otherwise suggests:

"(the) 2010 Recommendation" means the European Commission's Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (C(2010) 572 final);

"(the) 2013 Recommendation" means the European Commission's Recommendation of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (C(2013) 5671 final);

"Access Regulations" means the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011);

"ComReg Decision D10/18" means ComReg Document No. 18/94 entitled "Market Review – Wholesale Local Access (WLA) provided at a Fixed Location and

Wholesale Central Access (WCA) provided at a Fixed Location for Mass Market Products: Response to Consultation and Decision" dated 19 November 2018;

"ComReg Decision D11/18" means ComReg Document No. 18/95 entitled "Pricing of Wholesale Broadband Services – Wholesale Local Access (WLA) market and the Wholesale Central Access (WCA) markets: Response to Consultation Document 16/26 and Final Decision" dated 19 November 2018;

"ComReg Decision D11/21" means ComReg Document No. 21/130 entitled, "Regulated Wholesale Fixed Access Charges: Review of the Access Network Model, Response to Consultation and Final Decision", dated 17 December 2021";

"Effective Date" means the date specified in Section 13 of this Decision Instrument;

"Eircom" means Eircom Limited, a company incorporated in Jersey (Number 116389), registered as a Branch in Ireland (Number 907674), with an Irish registered Branch Office at 2022 Bianconi Avenue, Citywest Business Campus, Dublin 24, D24 HX03;

"European Electronic Communications Code" means Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code;

"Framework Regulations" means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011);

"WCA Decision Instrument" means the Decision Instrument included at Annex 21 of ComReg Decision D10/18;

"WCA Price Control Decision Instrument" means the Decision Instrument included at Annex 2 of ComReg Decision D11/18;

"WLA Decision Instrument" means the Decision Instrument included at Annex 20 of ComReg Decision D10/18;

"WLA Price Control Decision Instrument" means the Decision Instrument included at Annex 1 of ComReg Decision D11/18.

2.2 Capitalised terms which are not defined in Section 2.1 shall have the meaning set out in the WLA Decision Instrument, the WCA Decision Instrument, the WLA Price Control Decision Instrument and the WCA Price Control Decision Instrument.

3 SCOPE AND APPLICATION

3.1 This Decision Instrument further specifies the price control obligations imposed on Eircom in respect of the Wholesale Local Access and Wholesale Central Access markets defined in ComReg Decision D10/18.

3.2 This Decision Instrument shall apply to Eircom and its subsidiaries and any related companies, and any Undertaking which it owns or controls, and any Undertaking which owns or controls Eircom, and its successors and assigns, and the terms "subsidiary" and "related company" shall have the meanings ascribed to them in the Companies Act 2014.

3.3 The amendments to prices specified in Part II and Part III of this Decision Instrument shall apply from the first day of the third month following the Effective Date of this Decision Instrument.

PART II – AMENDMENTS OF THE WLA DECISION INSTRUMENT AND FURTHER SPECIFICATION OF OBLIGATIONS IN THE WLA DECISION INSTRUMENT

4 AMENDMENT OF SECTION 2.1 OF THE WLA DECISION INSTRUMENT: DEFINITIONS

4.1 Section 2.1 of the WLA Decision Instrument is hereby amended by adding the following definitions:

"Access Network Model" means the cost model developed by ComReg for the purpose of assessing the efficient costs of an access network in the State using both BU-LRAIC+ including all LRIC/LRAIC/LRAIC+ variants and TD-HCA (on a Fully Allocated Cost basis) cost methodologies as described in ComReg Decision D11/21;

"Active assets" means electronic equipment such as voice and digital subscriber line ('DSL') cards and backhaul;

"**Authorised Undertaking**" has the same meaning as defined in Regulation 2 of the Authorisation Regulations;

"Commercial Area" means the Urban Commercial Area and the Rural Commercial Area, representing all premises in the State that are not within the Intervention Area;

"Fully Allocated Costs" or "FAC" means an accounting method to distribute all costs, including common corporate costs, among Eircom's various products and services in line with the allocation methodologies set out in Eircom's HCA regulatory accounts;

"Intervention Area" means the geographic target areas for State intervention for the National Broadband Plan comprising the premises and delivery points in respect of which NBI has contracted with the Minister to deliver high-speed broadband services under the NBI State Contract;

"Leased Lines" means a service that involves the supply of dedicated transmission capacity between fixed locations;

"Long Run Incremental Costs" or **"LRIC"** means the costs that are directly attributable to the provision of a service which would be avoided in the long run if that service were not provided and as such exclude joint or shared network costs and common corporate costs;

"**Long Run Average Incremental Costs"** or **"LRAIC"** means the average variable and fixed costs that are directly attributable to a particular activity over the long-run including, for the avoidance of doubt, an apportionment of joint or shared network costs but excluding common corporate costs;

"Minister" means the Minister for Environment, Climate and Communications;

"National Broadband Plan" means the Irish Government's initiative to deliver high speed broadband services to all premises in Ireland including intervention by the State in those parts of the country where private companies have no plans to invest;

"NBI" means the Authorised Undertaking NBI Infrastructure Designated Activity Company, a company registered in Ireland with number 631656 whose registered office at the date of this Decision Instrument is at 3009, Lake Drive, Citywest Business Campus, Citywest, Dublin 24, D24H6RR, Ireland;

"NBI State Contract" means the contract concluded between the Minister and NBI signed on 19 November 2019;

"Non-reusable Assets" means passive local loop assets and Non-Reusable Civil Engineering Infrastructure, including the network termination unit ('NTU'), final drops, D-side cables, E-side cables, cabinets, and main distribution frames ('MDFs');

"Non re-useable Civil Engineering Infrastructure" or "Non re-useable CEI" means Civil Engineering Infrastructure that is used for the copper network but cannot be reused to accommodate an NGA network without further investment;

"Re-usable Assets" means Re-usable Civil Engineering Infrastructure;

"Re-useable Civil Engineering Infrastructure" or **"Re-useable CEI"** means Civil Engineering Infrastructure that is used for the copper network which can be reused to accommodate an NGA network without further investment;

"**Rural Commercial Area**" means the area in the State comprised of the premises passed by Eircom (or to be passed by Eircom) as a result of Eircom's commitment to deliver high speed broadband on a commercial basis under its 2017 Agreement with the Minister in relation to National Broadband Plan – commercial deployment commitment;

"Urban Commercial Area" means the areas in the State comprised of premises that are not in the Intervention Area or the Rural Commercial Area;

"WACC" means the Weighted Average Cost of Capital;

"2020 WACC Decision" means ComReg Decision No. D10/20 entitled "Review of Weighted Average Cost of Capital", ComReg Document 20/96, dated 14 October 2020.

4.2 The definitions in Section 2.1 of the WLA Decision Instrument corresponding to the definitions in this Section 4.2 are hereby substituted and replaced as follows:

"Bottom Up Long Run Average Incremental Cost Plus" or **"BU-LRAIC+"** means the average variable and fixed costs derived from the economic and/or engineering model of an efficient network that are directly attributable to a particular activity over the long-run, including an apportionment of joint or shared network costs including an apportionment of common corporate costs; and

"Top-Down HCA" means the costs calculated using Eircom's HCA and network information, adjusted for efficiencies.

4.3 The following definitions in Section 2.1 of the WLA Decision Instrument are hereby deleted:

"Revised Copper Access Model".

5 AMENDMENTS OF SECTIONS 12.3, 12.4, 12.5 AND 12.7 OF THE WLA DECISION INSTRUMENT: SPECIFICATION OF THE PRICE CONTROL OBLIGATIONS FOR LLU, SLU, LINE SHARE AND DARK FIBRE

5.1 The specification of the obligation of cost orientation imposed by Section 12.2 of the WLA Decision Instrument is hereby amended by the substitution of Section 12.3 with the following section and sub-sections:

ULMP and SLU

"12.3 - The cost orientation obligation set out in Section 12.2 is hereby specified as follows in respect of ULMP:

12.3.1 Eircom shall ensure that the monthly price charged by Eircom to any Undertaking in the State in relation to ULMP does not exceed the average costs per month of providing ULMP Access in the Urban Commercial Area, calculated by reference to the Access Network Model using a combination of Top-Down HCA (calculated on a Fully Allocated Cost basis) and BU-LRAIC+ costing methodologies, reflecting the proportion of Reusable and Non-reusable network assets used respectively in the provision of ULMP Access, allowing for a rate of return equal to the WACC applicable on 17 December 2021.

12.3.2 For the purpose of Section 12.3.1, in the period 2022 – 2024, the

average costs per month are in the amounts set in Table 1 below.

TABLE 1 – ULMP: ULMP Costs per month (€)	
1 March 2022 - 30 June 2022	12.79
1 July 2022 – 30 June 2023	13.14
1 July 2023 – 30 June 2024	14.05

12.3.3 ComReg may, from time to time, update the Access Network Model, and the costs set out in Table 1 at Section 12.3.2 setting the maximum price for ULMP Access may be amended as appropriate.

12.3.4 For the avoidance of doubt and without prejudice to Section 12.10 and Section 12.11, no charges other than those provided for under Section 12.3.1 may be raised by Eircom on an Undertaking in respect of access to ULMP, save as otherwise explicitly allowed for by ComReg."

5.2 The specification of the obligation of cost orientation imposed by Section 12.2 of the WLA Decision Instrument is hereby amended by the substitution of Section 12.4 with the following section and sub-sections:

"12.4 - The cost orientation obligation set out in Section 12.2 is hereby specified as follows in respect of SLU:

12.4.1 Eircom shall ensure that the monthly price charged by Eircom to any Undertaking for the provision of SLU Access in the State does not exceed the average costs per month of providing SLU Access in the Urban Commercial Area calculated by reference to the Access Network Model using a combination of Top-Down HCA (calculated on a Fully Allocated Cost basis) and BU-LRAIC+ costing methodologies, reflecting the proportion of Reusable and Non-reusable Network Assets used respectively in the provision of SLU Access, allowing for a rate of return equal to the WACC applicable on 17 December 2021.

12.4.2 For the purpose of Section 12.4.1, in the period 2022 – 2024, the average costs per month are in the amounts set in Table 2 below.

TABLE 2 – SLU Costs per month (€)	
1 March 2022 - 30 June 2022	10.03
1 July 2022 – 30 June 2023	10.18
1 July 2023 – 30 June 2024	10.68

12.4.3 ComReg may, from time to time, update the Access Network Model, and

the costs set out in Table 2 at Section 12.4.2 setting the maximum price for SLU Access may be amended as appropriate.

12.4.4 For the avoidance of doubt and without prejudice to Section 12.10 and 12.11, no charges other than those provided for under Section 12.4.1 may be raised by Eircom on an Undertaking in respect of access to SLU, save as otherwise explicitly allowed for by ComReg."

5.3 The specification of the obligation of cost orientation imposed by Section 12.2 of the WLA Decision Instrument in respect of Line Share is hereby amended by the substitution of Section 12.5 with the following section and sub-sections:

Line Share

"12.5 - The cost orientation obligation set out in Section 12.2 is hereby specified as follows in respect of Line Share:

12.5.1 Eircom shall ensure that the monthly price charged by it to any Undertaking in the State for Line Share Access is no more than the incremental costs per month associated with the provision of Line Share, allowing for a rate of return equal to the WACC applicable on 17 December 2021.

12.5.2 For the purpose of Section 12.5.1, in the period 2022 – 2024, Eircom shall ensure that the prices it charges for Line Share Access are the prices set out in Table 3 – Line Share.

TABLE 3 – Line Share: Monthly price for Line Share (€)	
1 March 2022 - 30 June 2022	0.62
1 July 2022 – 30 June 2023	0.62
1 July 2023 – 30 June 2024	0.62

12.5.3 For the avoidance of doubt and without prejudice to Section 12.10 and 12.11, no charges other than those provided for under Section 12.5.1 may be raised by Eircom on an Undertaking in respect of access to Line Share, save as otherwise explicitly allowed for by ComReg."

5.4 The specification of the obligation of cost orientation imposed by Section 12.2 of the WLA Decision Instrument in respect of Dark Fibre is hereby amended by the substitution of Section 12.7 with the following section and sub-sections:

Dark Fibre

"12.7- The cost orientation obligation set out in Section 12.2 is hereby specified as follows in respect of Dark Fibre:

12.7.1 Eircom shall ensure that the annual price it charges to any Undertaking

for the provision of Dark Fibre Access is, per metre of fibre, no more than the annual average costs of a metre of fibre between the points of Egress and Ingress calculated in accordance with Section 12.7.2.

12.7.2 For the purpose of Section 12.7.1, the annual cost of a metre of Dark Fibre shall be derived from the Access Network Model by dividing the total annual costs of fibre and associated infrastructure used to support Leased Line services by the total length, in metres, of fibre associated with Leased Line services, derived by assuming an average number of fibres per cable and an average utilisation rate of fibres in cables, using the Top-Down HCA (calculated on a Fully Allocated Cost basis) methodology for Reusable Assets and the BU-LRAIC+ methodology for Non-reusable network assets, allowing for a rate of return equal to the WACC applicable on 17 December 2021.

12.7.3 For the purpose of Section 12.7.2, in the period 2022 – 2024, the annual cost of a metre of Dark Fibre is as set out in Table 4 – Dark Fibre, subject however to Section 12.7.4.

TABLE 4 – Dark Fibre: Annual costs for Dark Fibre Access, per metre per single fibre (€)	
1 March 2022 - 30 June 2022	0.12
1 July 2022 – 30 June 2023	0.12
1 July 2023 – 30 June 2024	0.11

12.7.4 ComReg may, from time to time, update the Access Network Model, and the costs set out in Table 4 at Section 12.7.3 setting the maximum price for access to Dark Fibre may be amended as appropriate.

12.7.5 For the avoidance of doubt and without prejudice to Section 12.10 and 12.11, no charges other than those provided for under Section 12.7.1 may be raised by Eircom on an Undertaking in respect of access to Dark Fibre, save as otherwise explicitly allowed for by ComReg."

PART III – AMENDMENTS OF THE WCA DECISION INSTRUMENT AND FURTHER SPECIFICATION OF OBLIGATIONS IN THE WCA DECISION INSTRUMENT

6 AMENDMENT OF SECTION 2.1 OF THE WCA DECISION INSTRUMENT: DEFINITIONS

6.1 Section 2.1 of the WCA Decision Instrument is hereby amended by adding the following definitions:

"Access Network Model" means the cost model developed by ComReg for the purpose of assessing the efficient costs of an access network in the State using both BU-LRAIC+ including all LRIC/LRAIC/LRAIC+ variants and TD-HCA (on a

Fully Allocated Cost basis) cost methodologies as described in ComReg Decision D11/21;

"WACC" means the Weighted Average Cost of Capital;

"2020 WACC Decision" means ComReg Decision No. D10/20 entitled "Review of Weighted Average Cost of Capital", ComReg Document 20/96, dated 14 October 2020.

6.2 The definitions in Section 2.1 of the WCA Decision Instrument corresponding to the definitions in this Section 6.2 are hereby substituted and replaced as follows:

"Bottom Up Long Run Average Incremental Cost Plus" or **"BU-LRAIC+"** means the average variable and fixed costs derived from the economic and/or engineering model of an efficient network that are directly attributable to a particular activity over the long-run, including an apportionment of joint or shared network costs including an apportionment of common corporate costs; and

"Top-Down HCA" means the costs calculated using Eircom's HCA and network information, adjusted for efficiencies.

6.3 The following definitions in Section 2.1 of the WCA Decision Instrument are hereby deleted:

"Revised Copper Access Model".

7 AMENDMENTS OF SECTIONS 12.5 OF THE WCA DECISION INSTRUMENT: SPECIFICATION OF THE PRICE CONTROL OBLIGATIONS FOR CURRENT GENERATION STANDALONE BROADBAND

7.1 The specification of the obligation of cost orientation imposed by Section 12.2 of the WCA Decision Instrument in respect of Current Generation Standalone Broadband in the Regional WCA Market is hereby amended by the substitution of Section 12.5 with the following section and sub-sections:

Current Generation Standalone Broadband

"12.5 - The cost orientation obligation set out in Section 12.2 is hereby specified as follows in respect of Current Generation Standalone Broadband:

12.5.1 Eircom shall ensure that the monthly rental price charged by it to any Undertaking for Current Generation Standalone Broadband Access in the Regional WCA Market is no more than the average costs per month of providing Current Generation Standalone Broadband Access calculated in accordance with Section 12.5.2.

12.5.2 For the purpose of Section 12.5.1, the average costs per month of providing Current Generation Standalone Broadband Access shall be calculated using the Access Network Model as follows:

(i) The costs shall be the costs of the Exchanges in the WCA Regional Market, save that the costs in respect of the copper loop component shall be adjusted to account for the lower level of copper costs recovered from FTTC-based services;

(ii) The Top-Down HCA (calculated on a Fully Allocated Cost basis) methodology shall be used, save for Active Assets the costs of which shall be calculated using BU-LRAIC+ methodology;

(iii) A rate of return shall be allowed that is equal to the WACC applicable on 17 December 2021.

12.5.3 In the period 2022 – 2024, the average cost per month of providing Current Generation Standalone Broadband Access referred to in Section 12.5.2 is as set out in Table 1 – Current Generation Standalone Broadband, which includes an uplift of €1.86 in respect of the adjustment referred to in Section 12.5.2(i), subject however to Section 12.5.4.

TABLE 1 – Current Generation Standalone Broadband: Monthly Cost (€)

	National Handover		*Regional Handover*	
	Per Port	*Per Mbps*	*Per Port*	*Per Mbps*
1 March 2022 - 30 June 2022	25.37	0.44	23.78	0.19
1 July 2022 – 30 June 2023	25.33	0.37	23.73	0.16
1 July 2023 – 30 June 2024	25.69	0.33	24.10	0.14

12.5.4 ComReg may, from time to time, update the Access Network Model, and the costs set out in Table 1 at Section 12.5.3 may be amended as appropriate.

12.5.5 For the avoidance of doubt and without prejudice to Section 12.6, no charges other than those provided for under Section 12.5.1 may be raised by Eircom on an Undertaking in respect of access to Current Generation Standalone Broadband, save as otherwise explicitly allowed for by ComReg."

PART IV – OPERATION AND EFFECTIVE DATE

8 STATUTORY POWERS NOT AFFECTED

8.1 Nothing in this Decision Instrument shall operate to limit ComReg in the exercise and performance of its statutory powers or duties conferred on it under any primary or secondary legislation in force prior to or after the Effective Date of this Decision Instrument.

9 MAINTENANCE OF OBLIGATIONS

9.1 Unless expressly stated otherwise in this Decision Instrument, all obligations and requirements contained in Decision Notices and Directions made by ComReg applying to Eircom and in force immediately prior to the Effective Date of this Decision Instrument, including all obligations specified in the WLA and WCA Decision Instrument, continue in force and Eircom shall comply with same.

10 SMP OBLIGATIONS

10.1 For the avoidance of doubt, any obligations under Part II, Part III, and Part IV of this Decision Instrument shall apply to Eircom only to the extent that a relevant SMP Designation is extant.

11 CONFLICT

11.1 For the avoidance of doubt, to the extent that there is any conflict between a ComReg Decision Instrument or ComReg document dated prior to the Effective Date and Eircom's obligations now set out herein, this Decision Instrument shall prevail.

12 SEVERANCE

12.1 If any Section(s), clause(s) or provision(s), or portion(s) thereof, contained in this Decision Instrument, is(are) found to be invalid or prohibited by the Constitution, by any other law or judged by a court to be unlawful, void or unenforceable, that(those) Section(s), clause(s) or provision(s), or portion(s) thereof, shall, to the extent required, be severed from this Decision Instrument and rendered ineffective as far as possible without modifying the remaining Section(s), clause(s) or provision(s), or portion(s) thereof, of this Decision Instrument, and shall not in any way affect the validity or enforcement of this Decision Instrument or other Decision Instruments.

13 PUBLICATION, NOTIFICATION AND EFFECTIVE DATE

13.1 This Decision Instrument shall be published on ComReg's website (www.comreg.ie) and on the same day, notified to Eircom.

13.2 Further to Section 10.12(i) of the WLA Decision Instrument, ComReg hereby determines that Eircom shall publish on its publicly available website the price changes arising from the amendments made in Part II of this Decision Instrument within one month of the Effective Date.

13.3 Further to Section 10.11 of the WCA Decision Instrument, ComReg hereby determines that Eircom shall publish on its publicly available website the price changes arising from the amendments made in Part III Decision Instrument within one month of the Effective Date.

13.4 The Effective Date of this Decision Instrument shall be the date of its notification to Eircom.

13.5 This Decision Instrument shall remain in force until further notice by ComReg.

ROBERT MOURIK
COMMISSIONER
THE COMMISSION FOR COMMUNICATIONS REGULATION
THE 17TH DAY OF DECEMBER 2021

Annex 8: Decision Instrument and Direction (ComReg Decision D11/18)

1 STATUTORY POWERS GIVING RISE TO THIS DECISION INSTRUMENT

1.1 This Decision Instrument and Direction are made by the Commission for Communications Regulation ("ComReg"):

(i) Pursuant to Regulation 18 of the Access Regulations;

(ii) Pursuant to, and having regard to, the significant market power (SMP) designation of Eircom as provided for in Section 5 of the WLA Decision Instrument;

(iii) Pursuant to, and having regard to, the significant market power (SMP) designation of Eircom as provided for in Section 5 of the WCA Decision Instrument;

(iv) Pursuant to the cost orientation price control obligation, imposed pursuant to Regulation 8 and Regulation 13 of the Access Regulations in Section 12.2 of the WLA Decision Instrument;

(v) Pursuant to the cost orientation price control obligation, imposed pursuant to Regulation 8 and Regulation 13 of the Access Regulations in Section 12.2 of the WCA Decision Instrument;

(vi) Pursuant to Regulation 13(4) of the Access Regulations;

(vii) Pursuant to Section 10.12 of the WLA Decision Instrument;

(viii) Pursuant to Section 10.11 of the WCA Decision Instrument;

(ix) Having regard and pursuant to the 2020 WACC Decision;

(x) Having had regard to Sections 10 and 12 of the Communications Regulation Act 2002 (as amended); Regulation 16 of the Framework Regulations; and Regulations 6, 8, and 13 of the Access Regulations;

(xi) Having, pursuant to Section 13 of the Communications Regulation Act 2002 (as amended), complied with Ministerial Policy Directions where applicable;

(xii) Having taken utmost account of the European Commission's 2010 Recommendation and 2013 Recommendation;

(xiii) Having regard to the provisions contained in the European Electronic Communications Code;

(xiv) Having notified the draft measure and the reasoning on which the measure is based to the European Commission, BEREC and the national regulatory authorities in other EU Member States pursuant to Regulation 13 and Regulation 14 of the Framework Regulations and having taken account of any comments made by these parties;

(xv) Having had regard to the analysis and reasoning set out in ComReg Decision D10/18;

(xvi) Having had regard to the analysis and reasoning set out in ComReg Decision D11/18;

(xvii) Having had regard to the analysis and reasoning set out in ComReg Document No. 20/101 and having taken account of the submissions received from interested parties in response thereto following a public consultation pursuant to Regulation 12 of the Framework Regulations; and

(xviii) Having had regard to the analysis and reasoning set out in ComReg Decision D11/21.

1.2 This Decision Instrument shall, where appropriate, be construed consistently with the provisions of ComReg Decision D10/18, ComReg Document No. 18/94, ComReg Decision D11/18, ComReg Document No. 18/95, and ComReg Decision D11/21, ComReg Document No. 21/130.

PART I - GENERAL PROVISIONS

2 DEFINITIONS

2.1 In this Decision Instrument, unless the context otherwise suggests:

"Access Network Model" means the cost model developed by ComReg for the purpose of assessing the efficient costs of an access network in the State using both BU-LRAIC+ including all LRIC/LRAIC/LRAIC+ variants and TD-HCA (on a Fully Allocated Cost basis) cost methodologies as described in ComReg Decision D11/21;

"Access Regulations" means the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011);

"**Authorised Undertaking**" has the same meaning as defined in Regulation 2 of the Authorisation Regulations;

"Commercial Area" means the Urban Commercial Area and the Rural Commercial Area, representing all premises in the State that are not comprised within the Intervention Area;

"ComReg Decision D10/18" means ComReg Document No. 18/94 entitled "Market Review – Wholesale Local Access (WLA) provided at a Fixed Location and Wholesale Central Access (WCA) provided at a Fixed Location for Mass Market Products: Response to Consultation and Decision" dated 19 November 2018;

"ComReg Decision D11/18" means ComReg Document No. 18/95 entitled "Pricing of Wholesale Broadband Services – Wholesale Local Access (WLA) market and the Wholesale Central Access (WCA) markets: Response to Consultation Document 16/26 and Final Decision" dated 19 November 2018;

"ComReg Decision D11/21" means ComReg Document No. 21/130 entitled, "Regulated Wholesale Fixed Access Charges: Review of the Access Network Model, Response to Consultation and Final Decision", dated 17 December 2021";

"Effective Date" means the date specified in Section 13 of this Decision Instrument;

"Eircom" means Eircom Limited, a company incorporated in Jersey (Number 116389), registered as a Branch in Ireland (Number 907674), with an Irish registered Branch Office at 2022 Bianconi Avenue, Citywest Business Campus, Dublin 24, D24 HX03;

"Framework Regulations" means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011);

"Intervention Area" means the geographic target areas for State intervention for the National Broadband Plan comprising the premises and delivery points in respect of which NBI has contracted with the Minister to deliver high-speed broadband services under the NBI State Contract;

"**Rural Commercial Area**" means the area in the State comprised of the premises passed by Eircom (or to be passed by Eircom) as a result of Eircom's commitment to deliver high speed broadband on a commercial basis under its 2017 Agreement with the Minister in relation to National Broadband Plan – commercial deployment commitment;

"Urban Commercial Area" means the areas in the State comprised of premises that are not in the Intervention Area or the Rural Commercial Area;

"WACC" means the Weighted Average Cost of Capital;

"WCA Decision Instrument" means the Decision Instrument included at Annex 21 of ComReg Decision D10/18;

"WCA Price Control Decision Instrument" means the Decision Instrument included at Annex 2 of ComReg Decision D11/18;

"WLA Decision Instrument" means the Decision Instrument included at Annex 20 of ComReg Decision D10/18;

"WLA Price Control Decision Instrument" means the Decision Instrument included at Annex 1 of ComReg Decision D11/18;

"2020 WACC Decision" means ComReg Decision No D10/20 entitled "Review of Weighted Average Cost of Capital", ComReg Decision 20/96, dated 14 October 2020;

"2021 WLA Price Control Decision Instrument" means the Decision Instrument included at Annex 7 of ComReg Decision D11/21.

2.2 Capitalised terms which are not defined in Section 2.1 shall have the meaning set out in the WLA Decision Instrument, the WCA Decision Instrument, the WLA Price Control Decision Instrument and the WCA Price Control Decision Instrument.

3 SCOPE AND APPLICATION

3.1 This Decision Instrument directs the prices arising from the price controls set out in Section 4.1 of the WLA Price Control Decision Instrument and Section 4.1 of the WCA Price Control Decision Instrument respectively at Annex 1 and Annex 2 of ComReg Decision D11/18.

3.2 This Decision Instrument is addressed to Eircom and its subsidiaries and any related companies, and any Undertaking which it owns or controls, and any Undertaking which owns or controls Eircom, and its successors and assigns, shall comply with it, and the terms "subsidiary" and "related company" shall have the meanings ascribed to them in the Companies Act 2014.

3.3 The prices set out in Part II of this Decision Instrument shall apply from the first day of the third month following the Effective Date of this Decision Instrument and Table 1 of Annex 7 of ComReg Decision D11/18 shall be then withdrawn save as regards its last two lines in respect of Supplemental POTS costs which shall remain in place until further notice.

PART II – AMENDMENTS TO THE FURTHER SPECIFICATION OF THE COST ORIENTATION OBLIGATION IN THE WLA AND WCA PRICE CONTROL DECISION INSTRUMENTS

4 FOOTPRINTS

4.1 Section 2.1 of the WLA Price Control Decision Instrument shall be amended by adding the following definitions:

"Commercial Area" means the Urban Commercial Area and the Rural Commercial Area, representing all premises in the State that are not comprised within the Intervention Area;

"Intervention Area" means the geographic target areas for State intervention for the National Broadband Plan comprising the premises and delivery points in respect of which NBI has contracted with the Minister to deliver high-speed broadband services under the NBI State Contract;

"**Rural Commercial Area**" means the area in the State comprised of the premises passed by Eircom (or to be passed by Eircom) as a result of Eircom's commitment to deliver high speed broadband on a commercial basis under its 2017 Agreement with the Minister in relation to National Broadband Plan – commercial deployment commitment;

"Urban Commercial Area" means the areas in the State comprised of premises that are not in the Intervention Area or the Rural Commercial Area;

4.2 In Section 4.1 of the WLA Price Control Decision Instrument, the reference to "*FTTC VUA and EVDSL Footprint"* shall be replaced by "*the Urban Commercial Area".*

5 UPDATE OF THE NGA COST MODEL AND OF THE NGN CORE MODEL

5.1 The NGA Cost Model and the NGN Core Model, as defined in Section 2.1 of the WLA Price Control Decision Instrument and in Section 2.1 the WCA Price Control Decision Instrument, are hereby amended as follows:

5.1.1 The WACC value of 8.18% is substituted by the value of 5.56% per the methodology set out in the 2020 WACC Decision in respect of fixed line telecommunications;

5.1.2 The cost inputs in the NGA Cost Model derived from the Revised CAM shall be substituted by the equivalent cost inputs derived from the Access Network Model;

5.1.3 In particular and for the avoidance of doubt, the cost inputs in respect of LLU and SLU in the NGA Core Model shall be substituted by the values set out in Table 1 and Table 2 at Section 12.3.2 and Section 12.4.2 of the WLA Decision Instrument (as amended by the 2021 WLA Price Control Decision Instrument).

6 COST-ORIENTED PRICE FOR VIRTUAL UNBUNDLED ACCESS

Virtual Unbundled Access (VUA)

6.1 For the purpose of Section 4.1 of the WLA Price Control Decision Instrument, ComReg hereby directs that the costs per month of providing FTTC based VUA and/or Exchange Launched VUA in the Urban Commercial Area are as set out in Table 1 – FTTC-VUA Costs below.

TABLE 1 – FTTC-BASED VUA COSTS (€)	
1 March 2022 - 30 June 2022	18.36
1 July 2022 – 30 June 2023	18.54
1 July 2023 – 30 June 2024	19.12

7 COST-ORIENTED PRICE FOR BITSTREAM

FTTC-based Bitstream

7.1 For the purpose of Section 4.1 of the WCA Price Control Decision Instrument, ComReg hereby directs that the costs per month of providing FTTC based Bitstream and/or EVDSL in the FTTC Bitstream Footprint are as set out in Table 1 – FTTC Bitstream below.

TABLE 1 – FTTC-based Bitstream Costs (€)				
	National Handover		*Regional Handover*	
	Per Port	*Per Mbps*	*Per Port*	*Per Mbps*
1 March 2022 - 30 June 2022	22.19	0.29	20.20	0.11
1 July 2022 – 30 June 2023	22.48	0.27	20.42	0.11
1 July 2023 – 30 June 2024	23.24	0.27	21.08	0.11

Current Generation Bitstream and Bitstream Managed Backhaul

7.2 For the purpose of Section 4.4 of the WCA Price Control Decision Instrument, ComReg hereby directs that the costs per month of providing Current Generation Bitstream including Bitstream Managed Backhaul and Bitstream IP in the Regional WCA Market are the costs set out in Table 2 – Current Generation Bitstream below.

TABLE 2 – Current Generation Bitstream Costs (€)				
	Bitstream Managed Backhaul			
	National Handover		*Regional Handover*	
	Per Port	*Per Mbps*	*Per Port*	*Per Mbps*
1 March 2022 - 30 June 2022	7.94	0.44	6.41	0.19
1 July 2022 – 30 June 2023	8.12	0.37	6.47	0.16
1 July 2023 – 30 June 2024	8.36	0.33	6.58	0.14
	Bitstream IP			
	National Handover	*Regional Handover*		
1 March 2022 - 30 June 2022	8.28	6.55		
1 July 2022 – 30 June 2023	8.41	6.59		
1 July 2023 – 30 June 2024	8.61	6.69		

PART III – OPERATION AND EFFECTIVE DATE

8 STATUTORY POWERS NOT AFFECTED

8.1 Nothing in this Direction shall operate to limit ComReg in the exercise and performance of its statutory powers or duties conferred on it under any primary or secondary legislation in force prior to or after the Effective Date of this Direction.

9 MAINTENANCE OF OBLIGATIONS

9.1 Unless expressly stated otherwise in this Direction, all obligations and requirements contained in Decision Notices and Directions made by ComReg applying to Eircom and in force immediately prior to the Effective Date of this Decision Instrument, including all obligations specified in the WLA Price Control Decision Instrument and the WCA Price Control Decision Instrument, continue in force and Eircom shall comply with same.

10 SMP OBLIGATIONS

10.1 For the avoidance of doubt, any obligations under Part II and Part III, of this Decision Instrument shall apply to Eircom only to the extent that a relevant SMP Designation is extant.

11 CONFLICT

11.1 For the avoidance of doubt, to the extent that there is any conflict between a ComReg Decision Instrument or ComReg document dated prior to the Effective

Date and Eircom's obligations now set out herein, this Decision Instrument shall prevail.

12 SEVERANCE

12.1 If any Section(s), clause(s) or provision(s), or portion(s) thereof, contained in this Decision Instrument, is(are) found to be invalid or prohibited by the Constitution, by any other law or judged by a court to be unlawful, void or unenforceable, that(those) Section(s), clause(s) or provision(s), or portion(s) thereof, shall, to the extent required, be severed from this Decision Instrument and rendered ineffective as far as possible without modifying the remaining Section(s), clause(s) or provision(s), or portion(s) thereof, of this Decision Instrument, and shall not in any way affect the validity or enforcement of this Decision Instrument or other Decision Instruments.

13 PUBLICATION, NOTIFICATION AND EFFECTIVE DATE

13.1 This Direction shall be notified to Eircom and published on ComReg's website (www.comreg.ie) on the same day.

13.2 Further to Section 10.12(i) of the WLA Decision Instrument, ComReg hereby determines that Eircom shall publish on its publicly available website the price changes arising from the direction set out in Section 6.1 of this Decision Instrument within one month of the Effective Date.

13.3 Further to Section 10.11 of the WCA Decision Instrument, ComReg hereby determines that Eircom shall publish on its publicly available website the price changes arising from the directions in Section 7.1 and Section 7.2 of this Decision Instrument within one month of the Effective Date.

13.4 The Effective Date of this Decision Instrument shall be the date of its notification to Eircom.

13.5 This Decision Instrument shall remain in force until further notice by ComReg.

ROBERT MOURIK
COMMISSIONER
THE COMMISSION FOR COMMUNICATIONS REGULATION
THE 17TH DAY OF DECEMBER 2021

Annex 9: Europe Economics' Note in relation to WACC

A 9.1 Europe Economics' note in relation to comment 3.1 in the EC's Comment Letter has been published alongside this Decision.