



Commission for
Communications Regulation

Pricing of wholesale services in the Wholesale Local Access (WLA) market and in the Wholesale Central Access (WCA) markets:

Further specification of price control obligations in Market 3a (WLA) and Market 3b (WCA)

Consultation and Draft Decision

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An Coimisiún um Rialáil Cumarsáide

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Additional Information

All responses to this consultation should be clearly marked: -
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Please note ComReg will publish all respondents' submissions with the Response to this Consultation, subject to the provisions of ComReg's guidelines on the treatment of confidential information in ComReg Document No 05/24.

Redacted Information

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Chapter 1

1 Introduction

- 1.1 This consultation and draft decision (**'Draft Decision'**) relates primarily to a further specification¹ (and with some amendments²) to the price control obligations and transparency obligations in relation to:
- The Wholesale Local Access at a fixed location (**'WLA'**) market (**'WLA Market'**) (also referred to as **'Market 3a'** in the 2014 European Commission Markets Recommendation³ (**'2014 Commission Recommendation'**)) as set out in Consultation Document 16/96⁴ (referred to throughout this document as the **'WLA / WCA Market Review'**).
 - The Wholesale Central Access for mass market products (**'WCA'**) market (also referred to as **'Market 3b'** in the 2014 Commission Recommendation) as set out in the WLA / WCA Market Review.
- 1.2 In WLA / WCA Market Review, we proposed that Eircom has significant market power (**'SMP'**) in WLA Market. In addition, we defined two separate WCA markets; the **"Urban WCA Market"** consisting of 88 exchange areas which are tending towards effective competition and therefore no longer subject to regulation and the **"Regional WCA Market"** where we proposed that Eircom has SMP and therefore should continue to be subject to ex-ante regulation. The Urban WCA Market and Regional WCA Market are referred to collectively as the **'WCA Markets'**.
- 1.3 In the WLA / WCA Market Review we also proposed a number of remedies to address the competition problems identified. Among these remedies was a proposal to impose price controls on wholesale services in the WLA Market and in the Regional WCA Market. The high level price control obligations were described in the WLA / WCA Market Review and we committed to issuing a separate consultation on the detail of those price control obligations. This Draft Decision now further specifies the price control obligations (and to a lesser extent

¹ In line with Regulation 8, Regulation 13 and Regulation 18 of the Access Regulation (S.I. No 334 of 2011 European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011).

² In line with Regulation 8 and 13 of the Access Regulation.

³ Commission Recommendation of 9 October 2014 on relevant product and service markets (2014/710/EU) (**'2014 Markets Recommendation'**).

⁴ Consultation and Draft Decision: Market Reviews – Wholesale Local Access (WLA) provided at a Fixed Location and Wholesale Central Access (WCA) provided at a fixed location for Mass Market Products; dated 11 November 2016.

the transparency obligations) relating to the WLA Market and the Regional WCA Market.

- 1.4 Respondents now have the opportunity to provide their views on the proposals set out in this Draft Decision. In addition and in light of the pricing proposals further specified in this Draft Decision, respondents can provide further views regarding the pricing proposals set out in the WLA / WCA Market Review, in their response to this Draft Decision. It is intended that any final Decision regarding Consultation Document 16/96, Consultation Document 17/26 and the upcoming consultation on Bundles will be published (and become effective) simultaneously.

Q. 1 Do you have any further comments regarding the pricing proposals in ComReg Document 16/96 (WLA / WCA Market Review) in light of the pricing obligations further specified in this Draft Decision? Please provide reasons for your response.

- 1.5 Separately, in December 2016 we published an Information Notice in ComReg Document No 16/110⁵ on indicative estimates of cost ranges⁶ for the provision of fibre to the cabinet ('FTTC') based services. We noted in ComReg Document No 16/110 that publication of these cost ranges was being done as an exceptional measure given that the regulated wholesale prices may play a part in determining the relevant NBP prices and the level of interest from industry in this regard. We also stated in ComReg Document No 16/110 that we had not made any decision as to whether or what type of price control might ultimately apply nor had we made any decision made as to the particular assumption(s) within the cost model. In this Draft Decision we now consult on the proposed costing methodology that should apply in relation to FTTC based services as well as the proposed inputs and assumptions that should apply in the appropriate cost model so that respondents can provide their comments / views on the proposed approach. The proposed prices for FTTC based services as set out in Chapter 14 and Annex 8 of this Draft Decision are within the indicative cost ranges⁷ previously published in ComReg Document 16/110.

- 1.6 This Draft Decision considers the following:

⁵ "Draft cost ranges for next generation access ('NGA') services" dated 12 December 2016.

⁶ The draft cost range for FTTC based VUA was €14.50-€18.50 and for FTTC based Bitstream €19.50-€24.

⁷ For FTTC Bitstream we have considered the average projected usage for FTTC over the next three years.

WLA Market:

- (a) a further specification of the cost orientation obligation for fibre to the cabinet based virtual unbundled access (**'FTTC based VUA'**) in the WLA market;
- (b) a further specification of the wholesale margin squeeze obligation for fibre to the home based VUA (**'FTTH based VUA'**);
- (c) a further specification of the retail margin squeeze obligation corresponding to the footprint of the Urban WCA Market;
- (d) a further specification of the transparency obligation relating to pre-notification and compliance procedures with the relevant price control obligations in the WLA Market;
- (e) Determination of proposed rental prices for FTTC based VUA.

WCA Market:

- (a) a further specification of the cost orientation obligation for FTTC based Bitstream and for current generation Bitstream and bitstream managed backhaul (**'BMB'**) services in the Regional WCA market;
- (b) a further specification of the retail margin squeeze obligation for next generation access (**'NGA'**) services (**"FTTC based Bitstream"** and **"FTTH based Bitstream"**) and for current generation Bitstream services in the Regional WCA Market;
- (c) a further specification of the wholesale margin squeeze obligation for end-to-end next generation Bitstream (FTTC and FTTH) and end-to-end current generation Bitstream in the Regional WCA Market;
- (d) a further specification of the transparency obligation relating to pre-notification and compliance procedures with the relevant price control obligations in the Regional WCA Market;
- (e) Determination of proposed rental charges for FTTC based Bitstream and for current generation Bitstream and BMB services in the Regional WCA Market.

1.7 Figure 1 summarises the current price control measures in place for each of the wholesale access services in the existing wholesale physical network infrastructure access market (**'WPNIA'**) market⁸ and the wholesale broadband

⁸ ComReg Document 10/39 (ComReg Decision D05/10): Market Review: Wholesale (Physical) Network Infrastructure Access (Market 4) Further Response to Consultation Document No 08/104, Response to ComReg Document No. 09/42 and Decision (the "Decision Document"), dated 20 May 2010.

access ('WBA') market⁹, as well as the associated pricing decisions and the current costing methodologies in place. In addition, the table sets out the proposed changes to the overriding price control obligations as result of the WLA / WCA Market Review, which are now further specified in this Draft Decision.

Figure 1: Overview of current pricing decisions for wholesale services in WLA market and WCA market

Access Service	ComReg Decision	Current price control	Current methodology	Proposed changes to overriding price control obligation as a result of WLA / WCA Market Review
Wholesale Local Access (WLA) Market				
LLU / SLU	ComReg Decision D03/16 ¹⁰ (' 2016 Access Pricing Decision ')	Cost orientation	Bottom up long run average incremental costs plus an apportionment of joint and common costs (' BU-LRAIC+ ') for non-reusable assets and top down (' TD ') costs for reusable assets	None
Poles/Ducts/Dark fibre	2016 Access Pricing Decision	Cost orientation	BU-LRAIC+ for non-reusable assets and TD costs for reusable assets	None
Line Share	2016 Access Pricing Decision	Cost orientation	Incremental costs	None
VUA	ComReg Decision D03/13 ¹¹ (' 2013 NGA Decision ')	Margin Squeeze obligation	Economic space between VUA and NGA Bitstream and between VUA and SLU	Cost orientation for FTTC based VUA.

⁹ ComReg Document No 11/49 (ComReg Decision D06/11): Response to Consultation and Decision Market Review – Wholesale Broadband Access (Market 5)"; dated 8 July 2011.

¹⁰ ComReg Document No. 16/39, ComReg Decision D03/16, "Pricing of Eir's Wholesale Fixed Access Services: Response to Consultation Document 15/67 and Final Decision", dated 18 May 2016.

¹¹ ComReg Decision No D03/13, ComReg Document No 13/11: Remedies in Next Generation Access Markets; dated 31 January 2013 ('**2013 NGA Decision**').

				<p>Margin squeeze obligation for FTTH based VUA.</p> <p>Retail margin squeeze obligation for NGA and CGA WLA products in the footprint corresponding to the Urban WCA Market.</p>
Ancillary services	2016 Access Pricing Decision	Cost orientation obligation	To recover no more than actual costs adjusted for efficiencies plus a reasonable rate of return	None
Wholesale Central Access (WCA) Market				
Current generation Bitstream and BMB	ComReg D11/14 ¹² (' 2014 WBA Pricing Decision ')	<p>National Cost orientation</p> <p>Cost Orientation Outside the larger exchange area ('LEA')¹⁴</p> <p>Margin squeeze test in the LEA¹⁵ and Outside the LEA</p> <p>Price floor for Bitstream</p>	<p>Actual costs adjusted for efficiencies plus a reasonable rate of return</p> <p>Retail test in LEA.</p> <p>Retail test Outside the LEA.</p> <p>Cost of reasonably efficient operator ('REO')</p>	<p>Cost orientation obligation in Regional WCA Market.</p> <p>Retail margin squeeze obligation in Regional WCA Market (Regional Area 1 and Regional Area 2).</p> <p>Continue to ensure economic space between WLA and WCA services.</p>

¹² ComReg Document No 14/73R: 'Wholesale Broadband Access: Price Control obligation in relation to current generation Bitstream ('**2014 WBA Pricing Decision**').

¹⁴ The meaning of "Outside the LEA" is described in Chapter 4 of the WBA Pricing Decision (ComReg Decision D11/14).

¹⁵ LEA has the meaning as set out in Section 2.1 of the Decision Instrument contained in Annex 3 of ComReg Decision D04/13.

	ComReg Decision D06/12 ¹³ ('2012 WBA Price Floors Decision')			
NGA Bitstream	2013 NGA Decision	Margin Squeeze obligation	To ensure sufficient margin between Retail NGA and NGA Bitstream and also between NGA Bitstream and VUA.	Cost orientation for FTTC based Bitstream in the Regional WCA Market. Wholesale margin squeeze obligation for FTTH based Bitstream. Retail margin squeeze obligation for FTTC and FTTH NGA Bitstream in the Regional WCA Market.
End-to-end Bitstream	2013 NGA Decision and 2012 WBA Price Floors Decision	Margin Squeeze obligation	To ensure sufficient economic space between End-to-end Bitstream (current and next generation) and Bitstream (current generation and next generation).	End-to-end margin squeeze obligation (for current and next generation services) in Regional WCA Market.
SABB	2014 WBA Pricing Decision 2016 Access Pricing Decision	Cost orientation Outside of the LEA.	Eircom to recover no more than actual TD costs adjusted for efficiencies (with BU-LRAIC+ costs applied to active Assets) for provision of SABB Outside the LEA.	None.

¹³ ComReg Document No 12/32: Wholesale Broadband Access: Further specification to the price control obligation and an amendment to the transparency obligation; dated 5 April 2012 ('2012 WBA Price Floors Decision').

Ancillary services	2016 Access Pricing Decision	Cost orientation obligation	To recover no more than actual costs adjusted for efficiencies plus a reasonable rate of return.	None.
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1.8 ComReg has considered the views of its expert consultants Jacobs Cordova and Associates (**Jacobs**) with regards to the proposed pricing approach for current generation WCA services and the views of TERA Consultants (**TERA**) with regards to the proposed pricing approach for next generation access (**NGA**) services in the WLA and WCA markets, in arriving at the Draft Decisions set out in this paper.¹⁶

1.9 This document is structured as follows:

- *Chapter 2:* provides an executive summary of the main points of the consultation and ComReg's overall objectives.
- *Chapter 3:* provides a background on the wholesale access services under review in the WLA market and WCA Markets and the associated competition problems.
- *Chapter 4:* sets out the market developments in the WLA Market and WCA Markets.
- *Chapter 5:* sets out the proposed costing methodologies for determining the relevant costs for those wholesale access services subject to a cost orientation price control in the WLA Market and in the Regional WCA Market, including current generation WCA services in the Regional WCA Market, FTTC based Bitstream in the Regional WCA Market and FTTC based VUA in the WLA Market.
- *Chapter 6:* sets out the proposed cost modelling approach for the NGA network i.e., FTTC based VUA and FTTC based Bitstream.
- *Chapter 7:* sets out the proposed pricing approach for FTTC based NGA services i.e., FTTC based VUA and FTTC based Bitstream.
- *Chapter 8:* sets out the proposed cost modelling approach for the NGN core network.

¹⁶ For information purposes only, the JCA report is published at Annex 7. The TERA report is published at Annex 6. The views expressed by JCA and TERA are not necessarily the views of ComReg.

- *Chapter 9*: sets out the proposed pricing approach for current generation Bitstream and BMB services.
- *Chapter 10*: sets out a further specification of the margin squeeze obligations associated with the WLA Market.
- *Chapter 11*: sets out a further specification of the margin squeeze obligations associated with the Regional WCA Market.
- *Chapter 12*: sets out other proposed regulatory measures.
- *Chapter 13*: sets out a review of specific ancillary charges in the WLA and WCA markets.
- *Chapter 14*: sets out a summary of the proposed charges for FTTC based NGA services and the monthly BU-LRAIC+ prices for current generation Bitstream and BMB services as well as the indicative price floors for current generation Bitstream and BMB services (should we decide to continue with a price floor for current generation services going forward).
- *Chapter 15*: sets out an analysis of the likely effect of the proposed costing/pricing methodologies and pricing approaches as well as the proposed principles of the margin squeeze tests.
- *Chapter 16*: sets out the timelines for consultation response and how confidential information should be dealt with.

Chapter 2

2 Executive Summary

- 2.1 ComReg is the regulator for the electronic communications sector in Ireland.
- 2.2 Our regulatory objectives in line with Section 12 of the Communications Regulations Act 2002¹⁷ (**‘the Communications Regulations Act 2002 (as amended)’**) and Regulation 16 of the Framework Regulations¹⁸ are to promote competition, to contribute to the development of the internal market and to promote the interests of users within the community. In the context of this document the following objectives¹⁹ are also relevant:
- Incentivise efficient network investment by Eircom and other operators, as appropriate;
 - Ensure that Eircom cannot price excessively;
 - Ensure Eircom cannot foreclose other operators from the market; and
 - Ensure Eircom recovers its actual efficient investment together with an appropriate rate of return.
- 2.3 The European Commission in the 2014 Commission Recommendation recommended a number of markets as being susceptible to *ex ante* regulation. These markets are currently being reviewed in an Irish context.
- 2.4 As set out in WLA / WCA Market Review (ComReg Document 16/96) it is our preliminary view that Eircom has significant market power (**‘SMP’**) in the following markets²⁰:
- WLA Market, nationally;
 - In the Regional WCA Market.
- 2.5 In the WLA / WCA Market Review ComReg has proposed a number of obligations on Eircom in each of the two markets, including the obligation of a price control and the obligation not to cause a margin squeeze. Please refer to Figure 1 in Chapter 1 of this document for the details of the current price control obligations with regard to WLA and WCA services as well as the proposed changes to pricing obligations as a result of the WLA / WCA Market Review.

¹⁷ Communications Regulation Act 2002 (No. 20 of 2002), as amended by the Communications Regulation (Amendment) Act 2007 (No. 22 of 2007), the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010 (No. 2 of 2010) and the Communications Regulation (Postal Services) Act 2011 (No. 21 of 2011).

¹⁸ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011).

¹⁹ In line with Regulation 13 of the Access Regulations.

²⁰ Supra n.18.

- 2.6 In this Draft Decision we are further specifying the overriding price control obligations (including margin squeeze obligations) from the WLA / WCA Market Review in relation to wholesale services in the WLA Market and the Regional WCA Market.
- 2.7 In further specifying the price control obligations we must take utmost account of the recent European Commission Recommendation in 2013²¹ on non-discrimination and costing methodologies (the '**2013 Recommendation**'). The 2013 Recommendation, among other things, looks at the way copper and NGA wholesale access prices should be set and where cost orientation is appropriate.
- 2.8 Having regard to ComReg's regulatory objectives (at paragraph 2.2) and in light of the 2013 Recommendation (paragraph 2.7) we consider that the proposed prices set out in this Draft Decision achieve the appropriate balance between ensuring on the one hand that Eircom can recover costs that are efficiently incurred (including an appropriate return on invested capital) and that prices are not excessive, while on the other hand the appropriate investment signals are provided to the market place — in terms of efficient market entry and sufficient incentives to invest especially in the relevant areas of the country.
- 2.9 In this regard, we have used in some instances the bottom-up long run average incremental cost plus an apportionment for joint and common costs ('**BU-LRAIC+**') pricing approach and in other cases we have used the top down historic cost accounting ('**TD HCA**') approach.
- 2.10 The BU-LRAIC+ methodology is based on current costs which values the operator's assets at the current market value and allows for changes in asset prices. By linking the value of the assets to newly deployed network it promotes efficient investment incentives and ensures that the Incumbent (Eircom) recovers its future costs thereby encouraging investment by Eircom. A potential entrant is charged an access price in principle similar to what it might pay to build its own network, and thus promotes efficient infrastructure investment by other operators.²² In the context of this Draft Decision we propose to adopt the BU-LRAIC+ approach in line with the 2013 Recommendation, except for those assets that can be reused for the provision of NGA services as discussed at paragraph 2.11.²³
- 2.11 The TD HCA methodology means the Incumbent's (Eircom's) accounting data, adjusted for efficiencies as well as the forecast for future expenditure over the

²¹ Commission Recommendation dated 11 September 2013 on 'Consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment'.

²² Please refer to Chapter 5 of this document.

²³ *ibid.*

price control period similarly adjusted for efficiencies.²⁴ The accounting net book value of each asset is taken as the basis for capital costs and this value is depreciated over the remaining lifetime of each asset. Operating expenditure is also estimated from historic accounting information and common cost items are allocated to different services using allocation keys. An uplift to allow for the rate of return²⁵ is added to the Eircom costs. In the context of this Draft Decision we propose that Eircom's TD data should generally be applied to those assets that can be reused for the provision of NGA services e.g. poles and ducts, in line with the 2013 Recommendation.²⁶

- 2.12 We consider that it is important to achieve an appropriate balance between setting the necessary investment signals in the relevant areas (i.e., urban areas or more densely populated areas) while at the same time ensuring that Eircom does not over / under recover its actual efficient costs. If the wholesale price is too high in areas where infrastructure investment is also unlikely to develop (as the deployment cost for each line is high i.e., in rural areas), this would not be desirable due to the detrimental long-term impact on end users arising from a lack of competition, as competition from operators acting as resellers may also be dampened while end users may pay too much for their broadband service. On the other hand the wholesale price should not be too low, especially in the more densely populated areas, as it could deter investments in the long term.
- 2.13 An additional consideration in this document is whether the wholesale services under review should be priced based on national costs or on geographically de-averaged costs. We have also considered the risk that geographically de-averaged prices could lead to a digital divide if the prices of services prove prohibitively high in rural areas which may be to the detriment of end users. This is discussed for NGA services in Chapter 7 of this document and for current generation access ('CGA') services in Chapter 9 of this document.
- 2.14 In the proceeding paragraphs we have summarised the proposed approach to setting the wholesale prices for the various WLA and WCA services. For LLU, SLU, Line Share, duct access, pole access and dark fibre we have continued with the obligations set out in the 2016 Access Pricing Decision which have been largely re-imposed in the WLA / WCA Market Review. Therefore, this Draft Decision does not revisit the costing methodologies or prices associated with these services. Similarly, for ancillary services, we have continued the obligations set out in the 2016 Access Pricing Decision regarding ancillary charges associated with the WLA and WCA markets, as re-imposed in the WLA / WCA Market Review. However, in Chapter 13 of this document we have reviewed the proposed pricing options for the recovery of connection costs

²⁴ *ibid.*

²⁵ *ibid.*

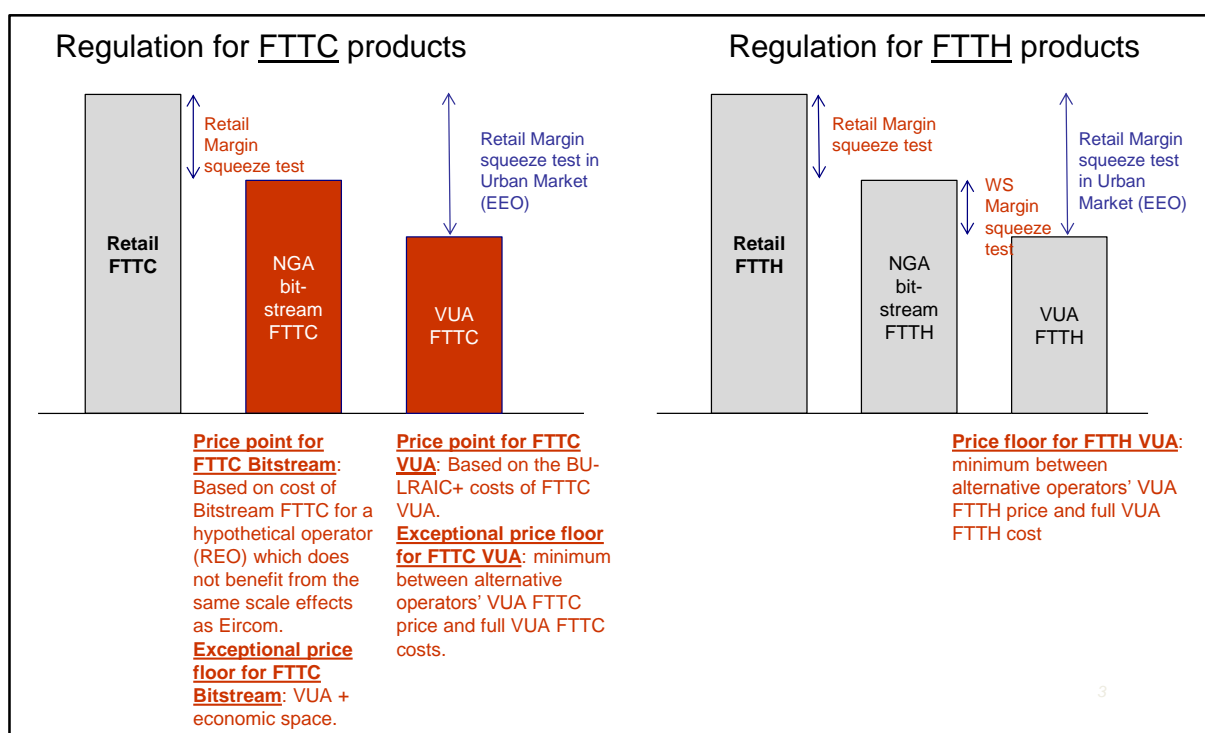
²⁶ *ibid.*

associated with current generation and next generation services and we have also further specified the cost orientation obligation in relation to Wholesale Ethernet Interconnect Links ('WEILs').

2.15 We propose a price control period of three years but in any event it should remain in place until further notice by ComReg. The proposed three year period should be from 2017/18 to 2019/20. The draft prices set out in the preceding paragraphs assume an implementation date of 1 July 2017.

2.16 Figure 2 illustrates the proposed pricing approach for NGA services in the WLA and WCA markets.

Figure 2: Proposed pricing approach for NGA services



Virtual unbundled access (VUA):

2.17 The proposed national FTTC based VUA (including exchange launched very-high-bit-rate digital subscriber line ('EVDSL')²⁷) monthly rental prices for each year of the proposed price control period are:

²⁷ The single price for FTTC based VUA includes the costs for FTTC based VUA and also the cost for exchange launched very-high-bit-rate digital subscriber line (EVDSL). This is discussed in Chapter 6 and Chapter 7 of this document.

Services	€ 2017/2018	€ 2018/2019	€ 2019/2020
FTTC based VUA ²⁸	16.50	16.86	17.21

2.18 We propose that the monthly national rental price is based on a BU-LRAIC+ model for those areas where active FTTC and EVDSL lines are deployed. In line with the 2013 Recommendation, we have applied a BU-LRAIC+ approach to those assets that cannot be reused for NGA services and Eircom’s TD data is applied to those assets that can be reused for NGA services.

2.19 For further details please refer to Chapters 5, 6 and 7 of this document.

2.20 For VUA FTTH we propose that a margin squeeze obligation should continue to apply such that Eircom should maintain a sufficient economic space between FTTH based VUA (in the WLA Market) and FTTH based NGA Bitstream (in the WCA Markets). In this regard we propose that there should be one single wholesale FTTH based VUA price in the WLA Market (except where there are justifiable cost differences) which should be assessed against a portfolio of variant FTTH based Bitstream prices (where the difference in prices should not be greater than the differences in costs associated with the various FTTH Bitstream profile speeds) in the WCA Markets.

2.21 For further details please refer to Chapter 10 of this document.

NGA Bitstream:

2.22 The proposed monthly rental prices for FTTC based Bitstream in the Regional WCA Market for each year of the proposed price control period (based on an assumed mix of 90% regional handover and 10% national handover)²⁹ are:

Services	€ 2017/2018	€ 2018/2019	€ 2019/2020
Per port charge ³⁰	18.99	19.38	19.78
Per Mbps usage charge	0.34	0.26	0.20

²⁸ This price includes monthly fault repair and provisioning costs.

²⁹ Please note that the individual port prices and per Mbps prices for national handover and regional handover for FTTC based Bitstream services for each year of the proposed price control period are set out in Chapter 14 of this document.

³⁰ This price includes monthly fault repair and provisioning costs.

- 2.23 We propose that the monthly rental price for FTTC based Bitstream in the Regional WCA Market should be based on a BU-LRAIC+ model for those exchanges yet to be unbundled in the Regional WCA Market. In line with the 2013 Recommendation, we have applied a BU-LRAIC+ approach to those assets that cannot be reused for NGA services and Eircom's TD data is applied to those assets that can be reused for NGA services. For those costs specific to the provision of Bitstream e.g. Backhaul, we have made adjustments to reflect the scale (or market share) of a similarly efficient operator ('**SEO**'). We consider that this should be an appropriate proxy for a reasonably efficient operator ('**REO**').
- 2.24 For further details please refer to Chapters 5, 6 and 7 of this document.
- 2.25 For FTTH based NGA Bitstream please see paragraph 2.20 and 2.21.

Current generation Bitstream and BMB services:

- 2.26 For current generation Bitstream and BMB services we propose to determine the monthly rental prices based on Eircom's costs.
- 2.27 We propose that the monthly rental price for current generation Bitstream and BMB services in the Regional WCA Market should be based on a BU-LRAIC+ model for those exchanges in the Regional WCA Market.
- 2.28 For further details please refer to Chapters 5, 8 and 9 of this document.
- 2.29 We are also considering whether it is necessary going forward to have a price floor for current generation Bitstream services. In light of the expectation that CGA demand will continue to decline during the price control period and recognising that future investment appears to be focussed on NGA rather than CGA infrastructure ComReg would welcome industry's views as to the extent that ongoing investment in CGA needs to be protected and promoted in this way.
- 2.30 For further details please see Chapter 9 of this document.

Margin squeeze tests

- 2.31 In addition to the above we propose further specifying a number of margin squeeze tests from the WLA / WCA Market Review.
- 2.32 In the WCA market, we further specify the proposed principles associated with the retail margin squeeze tests for FTTC and FTTH based NGA services to ensure a sufficient margin between the price of retail NGA offers and FTTC/FTTH Bitstream prices in the Regional WCA Market. In addition, we are further specifying the proposed principles for the retail margin squeeze tests associated with current generation retail broadband offers to ensure a sufficient margin between the price of retail current generation offers and current generation

Bitstream in the Regional WCA Market. At a wholesale level we are further specifying the End-to-end Bitstream (also known as 'White Label') margin squeeze tests in the context of NGA and current generation services in the Regional WCA Market.

- 2.33 For further details please see Chapter 11 of this document.
- 2.34 In the WLA market, we are further specifying the proposed principles of the retail margin squeeze test associated with WLA services whereby Eircom should not cause a retail margin squeeze in those urban exchanges corresponding to the Urban WCA Market such that there is a sufficient margin between prices for Eircom's standalone retail broadband services and the relevant WLA inputs. This test should apply to FTTC and FTTH WLA services as well as copper based WLA services.
- 2.35 For further details please see Chapter 10 of this document.

Other regulatory measures:

- 2.36 For connection costs associated with current generation and next generation services, we propose that Eircom should recover the costs through a combination of an upfront connection charge and a monthly rental charge.
- 2.37 We propose that those costs that are incurred each time an end user migrates from one retail service provider ('RSP') to another should be recovered on the basis of an upfront connection charge. Other costs, such as the costs of the service lead (underground or overhead fibre), the optical network terminal ('ONT') in the end user's premises or the costs of all poles, ducts and boxes on public roads³¹, should be recovered as part of the ongoing rental charge in line with the economic life of the asset.
- 2.38 For further details please refer to Chapter 13 of this document.

Next steps:

- 2.39 ComReg believes that the proposed pricing framework set out in this document should strike the right balance between ensuring Eircom's recovery of costs while it should also send the appropriate investment signals to Eircom and other operators for efficient infrastructure investment in areas where it is considered appropriate. This document when considered in conjunction with the 2016 Access Pricing Decision should ensure that competition is incentivised and

³¹ As we understand it, Eircom's policy is that it does not deploy new civil infrastructure such as duct and poles on private property where there is no public right of way to connect an FTTH end-users.

fostered in the long-term so that end users benefit from a wide variety of choice at affordable prices.

- 2.40 ComReg welcomes the views of the industry regarding the proposals set out in this document. In that regard, responses to this consultation must arrive at ComReg by 5pm, Friday, 2 June 2017.
- 2.41 ComReg in making its final decision (if appropriate) will consider all the views of respondents to this consultation and in addition any further views provided by respondents regarding the pricing proposals in the WLA / WCA Market Review as noted at paragraph 1.4. We will also take utmost account of any comments from the European Commission in deciding on the appropriate price control for the WLA and WCA markets.

Chapter 3

3 Background

3.1 Overview

3.1 In order to assist readers of this Draft Decision, this chapter provides an overview of the wholesale access services, under the following headings:

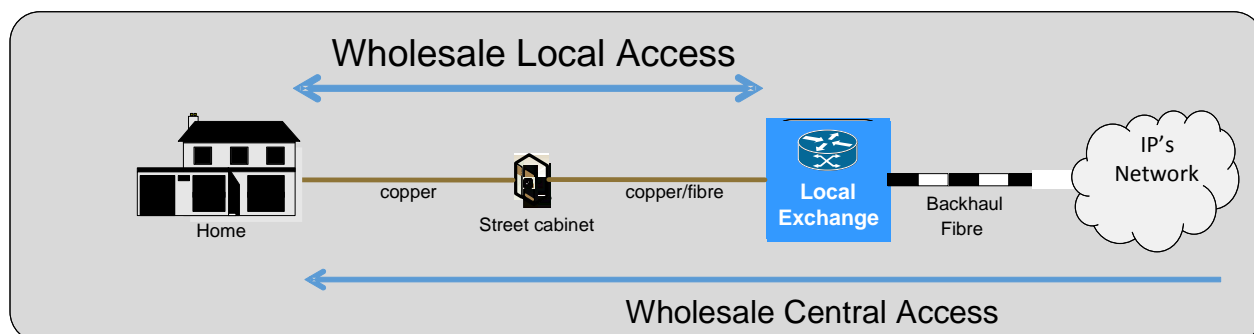
- Technical background;
- Competition concerns; and
- Current regulatory price controls.

3.2 Each is discussed in turn below.

3.2 Technical background

3.3 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 Alternative Operator's ('**OAO's**') network to the end user's premises. This is illustrated in Figure 3.

Figure 3: Provision of WLA and WCA services



3.2.1 WLA services:

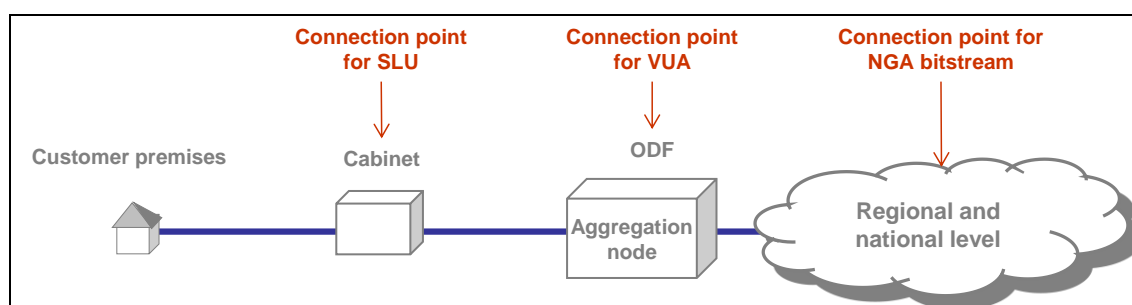
3.4 **LLU**: This allows unbundled access to the local loop. The local loop is the physical path which connects a local exchange to a home or premises usually via a street side cabinet. LLU allows OAOs access to Eircom's local network at regulated prices and facilitates them in the provision of services directly to end users. LLU is an important driver of competition in the delivery of high speed

- broadband. Please see Chapter 3 of the 2016 Access Pricing Decision for further details.
- 3.5 **SLU:** This allows unbundled access to the local sub-loop. A sub-loop is the portion of the local loop which runs from a street side cabinet to a home or premises. SLU allows OAOs to unbundle loops at the street side cabinet. Please see Chapter 3 of the 2016 Access Pricing Decision for further details.
- 3.6 **Line Share:** This allows for renting the broadband capability of a loop only. When using Line Share to offer services to an end user an operator rents the broadband capability of a local loop only, while another operator (e.g., Eircom Retail) provides narrowband services (mainly voice) over the same loop. Please see Chapter 3 of the 2016 Access Pricing Decision for further details.
- 3.7 **Civil Engineering Infrastructure:** (also known as passive infrastructure) means physical local loop facilities deployed by Eircom to host local loop cables such as copper wires, optical fibre and co-axial cables. It includes but is not limited to, subterranean or above-ground assets such as sub-ducts, ducts, manholes and poles. Please see Chapter 3 of the 2016 Access Pricing Decision for further details.
- 3.8 **Dark fibre:** Where access to civil engineering infrastructure is not available for economic, technical or capacity reasons, Eircom is obliged to provide access to dark fibre, where it is available. Therefore, where access to civil engineering infrastructure via duct access cannot be met for economic or technical reasons, requests may be met by the provision of available dark fibre. Please see Chapter 3 of the 2016 Access Pricing Decision for further details.
- 3.9 **VUA:** is where an operator gains control of the fibre path, typically provided from the local exchange to the consumer's premises. The OAO can then supply retail services to the consumer, or sell wholesale services, such as those sold in the WCA market, to OAOs. The level of control by the OAO for VUA is similar to that of LLU. Eircom offer two variants of VUA; Local VUA and Remote VUA. This is discussed further in Chapter 6 of this document.
- 3.10 **Exchange launched very-high-bit-rate digital subscriber line** (known as 'EVDSL') or in the context of the WLA Market known as "**Exchange launched VUA**": is basically a VDSL service where the active equipment required to provide the service is housed in an Eircom exchange building or equivalent. The shorter line lengths mean that the service characteristics of EVDSL are similar to FTTC. This is discussed in Chapter 6 of this document.

3.2.2 WCA services:

- 3.11 **Current generation Bitstream:** This comprises the non-physical or active network access (Bitstream access) at a fixed location.
- 3.12 **Current generation bitstream managed backhaul ('BMB')**: This is a form of Bitstream provided in the WCA market.
- 3.13 **SABB:** This provides a standalone DSL broadband service over the local loop, without a Public Switched Telephone Network ('PSTN') service, as described in Chapter 3 of the 2016 Access Pricing Decision.
- 3.14 **End-to-end Bitstream:** is end-to-end resale of Bitstream (current generation and next generation) which allows the OAO (also known as the Access Seeker) to purchase WBA without the need to have its own infrastructure for example Backhaul. Eircom currently provides a resale broadband product to OAOs, which ComReg has termed "End-to-end Bitstream" or "White Label Bitstream". This product allows an operator (a reseller) with no infrastructure or corresponding internet service provider ('ISP') service to offer a broadband service (and related services) at the retail level. The key underlying wholesale inputs of this End-to-end Bitstream service are currently regulated while the provision of the End-to-end Bitstream product is not.
- 3.15 **NGA Bitstream:** is a WBA product provided by Eircom in the WCA market i.e. a WBA product provided using NGA.
- 3.16 **Exchange launched very-high-bit-rate digital subscriber line** (known as 'EVDSL') or in the context of the WCA Markets known as "**Exchange launched Bitstream**": is basically a VDSL service where the active equipment required to provide the service is housed in an Eircom exchange building or equivalent. The shorter line lengths mean that the service characteristics of EVDSL are similar to FTTC. This is discussed in Chapter 6 of this document.
- 3.17 In terms of the different connection points between services in the WLA market and in the WCA market, please see Figure 4 which illustrates the difference in connection points between SLU (WLA market), VUA (WLA market) and NGA Bitstream (WCA market).

Figure 4: Provision of WLA and WCA services



Source: TERA Consultants

3.3 Competition concerns

3.3.1 Overview

- 3.18 The European Commission has identified a number of markets as being susceptible to ex-ante regulation. In line with the preliminary analysis set out in the WLA / WCA Market Review, we are of the preliminary view that Eircom has SMP in the WLA Market (nationally) and in the Regional WCA Market. This is discussed in more detail in Chapter 4 of this document.
- 3.19 Eircom’s wholesale products / services (in the respective markets) are purchased by OAOs in order to provide downstream retail services to end-users. These downstream retail offerings compete with Eircom’s own downstream retail arm.
- 3.20 In fixed markets, the access network is one of the most difficult parts of the telecommunications network for the incumbent’s (i.e., Eircom) competitors to replicate economically. As in other countries, the local loop network in Ireland is characterised by a large degree of sunk costs incurred over a significant period of time and with some assets continuing to provide services after a number of decades.
- 3.21 The high cost of building an alternative copper or fibre network acts as a barrier to entry for potential new market entrants. In particular, the low population density typical of rural parts of Ireland means that infrastructure-based competition in rural fixed line networks is not likely to be economically efficient even in the long term. Therefore, the most economically efficient outcome for the Irish fixed line market necessitates an OAO obtaining access to Eircom’s infrastructure.
- 3.22 However, ComReg considers that end users are best served in terms of product pricing and innovation where competition is based on investment in infrastructure by competing operators. As service providers can offer greater differentiation in services and products which are based on their own infrastructure, and where their reliance on the SMP operator’s wholesale infrastructure is reduced. ComReg considers that pricing WCA services too low could dis-incentivise

efficient investment by OAOs and therefore would not be in the long-term interests of end users — as the market for LLU / VUA investment would be foreclosed and end users would lose the potential benefit of dynamic efficiency and innovation associated with such investments. Therefore, in order to ensure that appropriate incentives are maintained to encourage investment in LLU / VUA, appropriate ex-ante regulatory pricing measures are required to ensure there is an adequate space or margin between WCA and WLA prices.

3.23 As noted in Section 7 of the WLA / WCA Market Review, Eircom has the ability and incentive to engage in a range of anti-competitive pricing behaviours to the ultimate detriment of competition and end users.

3.24 Absent appropriate preventative remedies several related competition problems³² may arise involving the SMP undertaking's conduct, including:

- Exploiting end users by virtue of its SMP position through, for example, setting excessive wholesale charges. This would raise the input costs for those OAOs that purchase Eircom's wholesale services. Given that such above cost wholesale prices may then be passed on by such OAOs to their retail end users via higher retail prices, it could ultimately have the potential to harm the development of effective competition in the downstream market, potentially through the actual or effective exclusion of downstream competitors;
- Leveraging its market power into adjacent vertically or horizontally related markets through price and non-price means with the effect of foreclosing or excluding competitors in downstream retail and/or upstream wholesale markets. Eircom, as a vertically-integrated operator with SMP, has the incentive to use its market power in upstream markets to affect the competitive conditions in downstream wholesale and/or retail markets, in particular, through its ability to control the key inputs used by wholesale customers — which compete against Eircom in such markets. This could result in a distortion of or restriction in competition in these downstream markets, ultimately resulting in harm to end users, potentially in the form of higher prices, lower output/sales, reduced quality or reduced consumer choice; and
- Engaging in behaviours, similar to those identified above in the context of leveraging, which delay/deter network investment and entry into the upstream and/or downstream markets.

³² ComReg would note that it is neither necessary to catalogue examples of actual abuse, nor to provide exhaustive examples of potential abuse.

- 3.25 On the basis of the competition problems identified above and as discussed in detail in Section 7 of the WLA / WCA Market Review, ComReg considers that a price control obligation is therefore justified and proportionate.
- 3.26 The purpose of ex-ante regulation is to prevent the possibility of such abuses and to promote competition by facilitating entry into the relevant markets. ComReg's overall objective in imposing regulatory remedies on an operator with SMP is therefore to promote economic efficiency by setting regulation which 'mimics' a competitive market and as far as possible to maximise viable infrastructure investment which has the most efficient outcomes for end users. The obligations imposed can include conditions such as transparency, non-discrimination, price control and accounting separation.
- 3.27 The current regulatory price controls associated with WLA services and WCA services are detailed in the next section.

3.4 Current regulatory price controls

3.4.1 WLA services

LLU / SLU:

- 3.28 LLU and SLU are currently subject to a cost orientation obligation in line with the ComReg Decision D05/10³³ ('**WPNIA Market Decision**'). The existing cost orientation obligations for LLU and SLU are currently further specified in the 2016 Access Pricing Decision.
- 3.29 For LLU, the monthly national rental price is based on a BU-LRAIC+ model for the LEA areas. A BU-LRAIC+ approach is applied to those assets that cannot be reused for NGA services and Eircom's TD data is applied to those assets that can be reused for NGA services (e.g., ducts and poles) using the revised copper access model ('**Revised CAM**'). The LLU monthly rental prices are set out in Chapter 13 of the 2016 Access Pricing Decision.
- 3.30 For SLU, the monthly national rental price is based on a national BU-LRAIC+ model. The BU-LRAIC+ costs are applied to those assets that cannot be reused for NGA services and Eircom's TD data is applied to those assets that can be reused for NGA services (e.g., ducts and poles), using the Revised CAM. The SLU monthly rental prices are set out in Chapter 13 of the 2016 Access Pricing Decision.

³³ ComReg Document No 10/39: 'Market Review: Wholesale (Physical) Network Infrastructure Access (Market 4) – Further Response to ComReg Document No. 08/104, Response to ComReg Document No. 09/42 and Decision', dated 20 May 2010.

- 3.31 In the WLA / WCA Market Review, ComReg proposed to re-impose the obligation of cost orientation for LLU and SLU as further specified in the 2016 Access Pricing Decision.

Line Share:

- 3.32 Line Share is subject to a cost orientation obligation in line with the WPNIA Market Decision. The cost orientation obligation for Line Share is currently further specified in the 2016 Access Pricing Decision where the price is currently based on the incremental costs of providing the line share service. The current maximum monthly rental price for Line Share is €0.77.
- 3.33 In the WLA / WCA Market Review, ComReg proposed to re-impose the obligation of cost orientation for Line Share, as further specified in the 2016 Access Pricing Decision.

Civil engineering infrastructure (duct and pole access):

- 3.34 Duct and pole access is subject to a cost orientation obligation in line with the 2013 NGA Decision. The cost orientation obligation for duct and pole access is currently further specified in the 2016 Access Pricing Decision.
- 3.35 For duct access, the maximum prices for duct access is based on a blend of Eircom's TD costs for those ducts that can be reused for NGA and the long-run view (or BU-LRAIC+ costs) of replacement of ducts for the provision of NGA services. Please see Figure 23 and Figure 24 in Chapter 13 of the 2016 Access Pricing Decision for duct access prices.
- 3.36 For pole access, the maximum price is based on a blend of Eircom's TD costs for those poles that can be reused for NGA (and including Eircom's forecasted capital spend on poles over the next 3 years) and the long run view (or BU-LRAIC+ costs) of replacement of poles for the provision of NGA services.
- 3.37 The maximum annual prices for pole access is set out in Figure 22 in Chapter 13 of the 2016 Access Pricing Decision.
- 3.38 In the WLA / WCA Market Review, ComReg proposed to re-impose the obligation of cost orientation for duct and pole access, as further specified in the 2016 Access Pricing Decision.

Dark fibre:

- 3.39 Dark fibre is subject to a cost orientation obligation in line with the 2013 NGA Decision. The cost orientation obligation for dark fibre access is further specified in the 2016 Access Pricing Decision.
- 3.40 For dark fibre the maximum price is based on a blend of Eircom's TD costs for those assets that can be reused for NGA and the BU-LRAIC+ costs for those assets that cannot be reused for NGA services.
- 3.41 Currently the obligation to offer dark fibre only applies in those circumstances where access to civil engineering infrastructure (ducts and poles) is not available for economic, technical or capacity reasons and where dark fibre is reasonably available.
- 3.42 Please see Figure 25 of Chapter 13 of the 2016 Access Pricing Decision for the prices.
- 3.43 In the WLA / WCA Market Review, ComReg proposed to re-impose the obligation of cost orientation for dark fibre access, as further specified in the 2016 Access Pricing Decision.

VUA:

- 3.44 VUA is currently subject to a margin squeeze obligation which is further specified in the 2013 NGA Decision. The 2013 NGA Decision specifies that Eircom must maintain an appropriate economic space between VUA and NGA Bitstream and between VUA and SLU in line with the NGA Margin Squeeze Model³⁴.
- 3.45 In the WLA / WCA Market Review, we proposed that the VUA product should be mandated in the WLA market. In addition, we proposed two separate pricing regimes; for FTTC based VUA we proposed a cost orientation obligation and for FTTH based VUA we proposed to maintain a margin squeeze obligation (with FTTH based NGA Bitstream). Please see ComReg Document 16/96, Section 8 for further details.
- 3.46 In this Draft Decision we are further specifying the appropriate methodology, modelling approach and draft prices for FTTC based VUA in line with the proposed cost orientation obligation in the WLA / WCA Market Review. For FTTH based VUA we are further specifying the appropriate margin squeeze principles. Please see Chapters 5, 6 and 7 of this document regarding the proposed costing methodology, modelling approach and draft prices for FTTC based VUA. Chapter 10 of this document sets out the proposed principles for the FTTH based VUA

³⁴ Model used by ComReg and Eircom to assess Eircom's compliance with its margin squeeze obligations set out in the 2013 NGA Decision (D03/13). Please see Chapter 10 of ComReg Decision D03/13 for further details.

margin squeeze test and the retail margin squeeze test corresponding to the footprint of the Urban WCA Market.

WLA ancillary services:

- 3.47 Ancillary services in the WLA are currently subject to a cost orientation obligation pursuant to the WPNIA Market Decision and the 2013 NGA Decision. The cost orientation obligation for ancillary services in the current WPNIA market is further specified in the 2016 Access Pricing Decision for current generation and next generation ancillary services.
- 3.48 Pursuant to the 2016 Access Pricing Decision Eircom can recover no more than its actual incurred costs (adjusted for efficiencies) plus a reasonable rate of return associated with the provision of these services, in line with the Ancillary Services Cost Model.
- 3.49 In the WLA / WCA Market Review, ComReg proposed to re-impose the obligation of cost orientation for ancillary services in the WLA market, as further specified in the 2016 Access Pricing Decision.
- 3.50 In Chapter 13 of this document we have further specified the cost orientation obligation regarding WEILs. We are also consulting on how the cost of connections should be recovered going forward for both CGA and NGA services.

3.4.2 WCA services

Bitstream and Bitstream managed backhaul ('BMB'):

- 3.51 The current cost orientation obligation for Bitstream and BMB services is further specified in the 2014 WBA Pricing Decision (D11/14). Eircom is currently subject to a national cost orientation obligation and a sub-national cost orientation obligation Outside the LEA for current generation Bitstream and BMB services based on Eircom's TD costs. In addition, Eircom must comply with a retail margin squeeze test in the LEA and Outside the LEA. Separately, Eircom is also subject to a Bitstream price floor i.e., a wholesale margin squeeze obligation between WLA services (LLU / Line Share) and WCA services (current generation Bitstream) in line with the 2012 WBA Price Floors Decision.
- 3.52 In the recent WLA / WCA Market Review, we proposed that a cost orientation obligation should apply to current generation Bitstream and BMB services in the Regional WCA Market. In addition, we proposed that a retail margin squeeze obligation should apply for current generation Bitstream services in the Regional WCA Market. We also proposed that the margin squeeze between WLA and WCA services should continue. Please see Section 13 of the WLA / WCA Market Review.

- 3.53 In this Draft Decision we are further specifying the cost orientation obligation for current generation WCA services in the Regional WCA Market to determine the appropriate costing methodology, the cost modelling approach and the draft prices. In addition, we are further specifying the margin squeeze principles that should apply to the retail margin squeeze tests for current generation WCA services in the Regional WCA Market as well as the principles for the wholesale margin squeeze test for End-to-end Bitstream. Please see Chapters 5, 8 and 9 of this document regarding the cost orientation obligation and modelling approach for current generation services. Chapter 11 of this document sets out the relevant margin squeeze tests. The proposed margin squeeze obligation between WLA services and WCA services (or the price floor) is discussed at Chapter 9.

Standalone broadband ('SABB'):

- 3.54 For SABB Outside the LEA, Eircom is currently subject to a cost orientation obligation pursuant to the 2014 WBA Pricing Decision. The cost orientation obligation for SABB Outside the LEA has been recently further specified in the 2016 Access Pricing Decision such that Eircom can recover no more than its actual incurred costs (adjusted for efficiencies) plus a reasonable rate of return for the provision of SABB outside the LEA with active assets based on BU-LRAIC+ costs.
- 3.55 In the WLA / WCA Market Review, ComReg proposed to re-impose the obligation of cost orientation for SABB Outside the LEA, as further specified in the 2016 Access Pricing Decision.
- 3.56 In this Draft Decision we are proposing to revisit one of the obligations regarding SABB Outside the LEA, as set out in the 2016 Access Pricing Decision (D03/16), where Eircom currently has the flexibility to reduce the price for SABB Outside the LEA so long as the price does not fall below the BU-LRAIC+ costs in the "Modified LEA". The Modified LEA, as discussed in Chapter 6 of the 2016 Access Pricing Decision, means the LEA footprint as defined in the Bundles Decision excluding qualifying exchanges based on Criterion 5 from the LEA footprint. The Bundles Decision identified Criterion 5 exchanges as exceptional exchanges which either: (a) is surrounded by a qualifying exchange; or (b) serves fewer than 500 residential premises and is located either adjacent to or in reasonable proximity to qualifying exchanges; or (c) is determined to the satisfaction of ComReg to have an economic affinity with adjacent qualifying exchanges. In the context of the 2016 Access Pricing Decision we considered that in setting appropriate price signals for wholesale fixed access services such as LLU, the same objectives are not relevant — in that we are not trying to encourage infrastructure-based competition in those specific types of exchanges covered by Criterion 5. On that basis we excluded the exchanges under Criterion 5 which resulted in a Modified LEA of 237 exchanges, as listed in Annex 14 of the 2016

Access Pricing Decision. In the context of this Draft Decision we recognise that a number of exchanges in the Modified LEA are now proposed to be deregulated as part of the Urban WCA Market in the WLA / WCA Market Review and therefore we propose to replace the “Modified LEA” footprint in order to determine the price floor for SABB Outside the LEA (or in Regional Area 2). Please see Chapter 12 of this document for further details.

NGA Bitstream:

- 3.57 NGA Bitstream is currently subject to a margin squeeze obligation which is further specified in the 2013 NGA Decision. In line with the 2013 NGA Decision Eircom must maintain an appropriate economic space between Retail NGA services and NGA Bitstream and between NGA Bitstream and VUA, in line with the NGA Margin Squeeze Model.
- 3.58 In the WLA / WCA Market Review we proposed two separate pricing regimes; for FTTC based Bitstream we proposed a cost orientation obligation and for FTTH based NGA Bitstream we proposed that a wholesale margin squeeze obligation should continue to apply. In addition, we proposed that the retail margin squeeze obligation should remain in place for both FTTC and FTTH based NGA Bitstream, in the Regional WCA Market only.
- 3.59 In this Draft Decision we are further specifying the appropriate methodology, modelling approach and draft prices for FTTC based Bitstream in line with the proposed cost orientation obligation in the WLA / WCA Market Review. We are also further specifying the appropriate margin squeeze principles that should apply in relation to the various margin squeeze tests noted at paragraph 3.58. Please see Chapter 5 and 6 of this document on the proposed costing methodology and the pricing approach for FTTC based Bitstream. Chapter 11 of this document assesses the proposed principles of the margin squeeze tests associated with FTTC and FTTH based NGA Bitstream.

End-to-end Bitstream:

- 3.60 End-to-end Bitstream is defined at paragraph 3.14.
- 3.61 Currently, Eircom is subject to a margin squeeze test between Eircom’s current generation End-to-end Bitstream service and the associated WBA regulated components, as set out in the 2012 WBA Price Floors Decision. Similarly, for next generation End-to-end Bitstream Eircom is also subject to a margin squeeze pursuant to the 2013 NGA Decision.
- 3.62 In the WLA / WCA Market Review we proposed that the wholesale margin squeeze tests associated with current generation and next generation End-to-end Bitstream services should continue.

3.63 In this Draft Decision we are further specifying the proposed principles associated with the wholesale margin squeeze tests for both current generation and next generation based End-to-end Bitstream. Please see Chapter 11 of this document for further details.

WCA ancillary services:

3.64 The current generation and next generation WCA ancillary services are subject to a cost orientation obligation pursuant to the 2013 NGA Decision. The cost orientation obligation has recently been further specified in the 2016 Access Pricing Decision.³⁵

3.65 As per the 2016 Access Pricing Decision, Eircom can recover no more than its actual incurred costs (adjusted for efficiencies) plus a reasonable rate of return associated with the provision of these services, in line with the Ancillary Services Cost Model.

3.66 In the WLA / WCA Market Review, we proposed to re-impose the obligation of cost orientation for ancillary services in the WCA market, as further specified in the 2016 Access Pricing Decision.

3.67 In Chapter 13 of this document we have further specified the cost orientation obligation regarding WEILs. We are also consulting on how the cost of connections should be recovered going forward for both CGA and NGA services.

³⁵ See Sections 4.5 and 4.6 of the Decision Instrument set out in Annex 2 of the 2016 Access Pricing Decision (D03/16).

Chapter 4

4 Market Developments

4.1 Overview

- 4.1 In this chapter we discuss the market developments associated with the WLA and WCA markets.
- 4.2 Eircom is currently the largest provider of WLA and WCA services in Ireland.
- 4.3 Eircom is also the largest retail provider of broadband services and as of Q3 2016, had 33% of total fixed broadband subscriptions and Virgin Media (previously UPC Ireland), the cable TV and broadband provider, has 27.1% of total fixed broadband subscriptions. Vodafone had 19.4% of fixed broadband subscriptions (excluding mobile broadband subscriptions), Sky Ireland had 11.4%, and all other OAOs combined accounted for the remaining 9% share of fixed broadband subscriptions, at Q3 2016.³⁶
- 4.4 As the operator with SMP, Eircom, to date, has been the sole provider of products in the WPNIA market. As of Q3 2016, Eircom provided 56,479 LLU lines³⁷ to WPNIA purchasers, down from 68,262 in Q3 2015. These purchasers subsequently use these inputs to provide various retail and wholesale services, including broadband.
- 4.5 Subscribers using a broadband service provided over a digital subscriber line ('**DSL**') (or copper based network) accounted for 26.9% of total broadband subscriptions in Q3 2016, down from 31.6% in Q3 2015. Subscribers using a broadband service provided over a fibre to the cabinet ('**FTTC**') NGA network accounted for 27.1% of total broadband subscriptions in Q3 2016. Between Q3 of 2015 and Q3 of 2016, FTTC network based subscriptions increased by 42.8%.³⁸
- 4.6 Mobile broadband subscriptions have declined since 2015, now accounting for 21.4% of total broadband subscriptions (Q3 2016), down from 24.4% in Q3 2015. Virgin Media's CATV network has a 21.5% share of total broadband subscriptions, which has remained relatively static in the year to Q3 2016. Fixed Wireless Access ('**FWA**') has a 2.5% share of total broadband subscriptions

³⁶ Irish Communications Market Quarterly Key Data Report, Data as of Q3 2016, ComReg Document 16/108 (R), 9 December 2016.

³⁷ This is split into 46,716 shared LLU lines and 9,783 full LLU lines, as set out in Irish Communications Market Quarterly Key Data Report, Data as of Q3 2016, ComReg Document 16/108 (R), 9 December 2016.

³⁸ Irish Communications Market Quarterly Key Data Report, Data as of Q3 2016, ComReg Document 16/108 (R), 9 December 2016.

down from 2.6% in Q3 2015. 'Other' (satellite/very localised fibre network) broadband subscriptions represent the remaining 0.6% of total broadband subscriptions in Q3 2016.³⁹

- 4.7 Overall, the most significant trend is the decline in broadband subscriptions provided over legacy DSL (copper wire) which have fallen by 4.7% between Q3 2015 and Q3 2016. At the same time, the number of subscriptions on VDSL (NGA) have increased, as set out at paragraph 4.5.
- 4.8 Over the last few years Eircom has undertaken a rollout of a FTTC network, passing about 1.6 million premises.⁴⁰ In October 2014, Eircom announced plans⁴¹ to rollout fibre to the home ('FTTH'), offering speeds of up to one gigabit. In September 2015, Eircom announced its plans for FTTH to 300,000 premises by the end of 2020⁴².
- 4.9 Eircom has increased its NGA wholesale prices twice since the launch of NGA services in 2013. In July 2015 Eircom increased the NGA Bitstream and VUA monthly rental price by €2, from €17.50 to €19.50.⁴³ From 1 September 2016, Eircom increased the rental price for FTTC based services by €3.50, from €19.50 to €23, and the monthly rental price for FTTH based services by €3. In addition, from 1 September 2016 Eircom increased the rental charge for its voice or plain old telephony service ('POTS') based NGA Bitstream / VUA service by €2.11.⁴⁴ At a retail level Eircom increased its retail broadband prices for standalone NGA products by circa €5 (incl. VAT).⁴⁵
- 4.10 In 2012 the Department of Communications, Energy and Natural Resources announced the National Broadband Plan ('NBP') to rollout broadband to less densely populated areas of Ireland. The NBP is intended to bring NGA broadband services to those geographic areas of the country that do not have such services available to them. In this context, Eircom will not likely be providing retail NGA services in these areas and therefore does not face competition. Given the timing of the NBP award process and the subsequent consequential network roll-out, ComReg considers that the NBP is likely to have a limited impact on Eircom's position as the SMP operator in the WLA Market in the short to medium term. The NBP may have implications for the potential uptake of some

³⁹ Irish Communications Market Quarterly Key Data Report, Data as of Q3 2016, ComReg Document 16/108 (R), 9 December 2016.

⁴⁰ <http://fibrerollout.ie/where-and-when/>

⁴¹ Eircom Press Release from 28 October 2014 is available here:

http://pressroom.Eir.net/press_releases/article/Eir_to_Offer_Gigabit_Broadband_Speeds/

⁴² http://www.openeir.ie/news/FTTH_programme_officially_launched/

⁴³ Please see Eircom's Bitstream price list at

http://www.openeir.ie/Reference_Offers/?selectedtab=wbaro.

⁴⁴ Please see Eircom's Bitstream price list at

http://www.openeir.ie/Reference_Offers/?selectedtab=wbaro.

⁴⁵ Please see second table at page 3 of

<https://www.eir.ie/opencms/export/sites/default/.content/pdf/pricing/Part3.1.pdf>.

wholesale access services, including FTTH based NGA services, duct access, pole access and dark fibre in these areas. We will continue to keep developments around the NBP under review.

- 4.11 In July 2014, ESB and Vodafone Ireland, announced a Joint Venture (**'SIRO'**), to build an FTTH network across 50 towns, reaching potentially 500,000 end users, offering download speeds up to one gigabit. The network is being deployed on ESB's existing overhead and underground infrastructure. SIRO offers a WLA based service (VUA), requiring service providers (**'SPs'**) who wish to use the SIRO network to build their own backhaul to SIRO's various points of presence (**'PoPs'**). Vodafone began offering retail broadband services over the SIRO network in December 2015 and Digiweb began purchasing services from SIRO in August 2016. As of September 2016, SIRO's network has a limited geographic footprint, although this is expected to grow further in the coming years. In September 2016, SIRO announced its rollout was gathering pace, with its network rollout now passing 10,000 premises a month across 17 towns.⁴⁶ Given the scale, coverage and timing of SIRO's network roll-out, in the medium term we consider that Eircom will continue to be the predominant WLA provider.
- 4.12 In Section 6 (paragraph 6.129) of the WLA / WCA Market Review ComReg reached the preliminary view that Eircom has SMP in the WLA market, nationally. Eircom has a market share of almost 100%⁴⁷ (in Q1 2016) in the WLA market.
- 4.13 In the WCA market, ComReg proposed two separate geographic markets; the Urban WCA Market and the Regional WCA Market. In Section 11 (paragraph 11.130) of the WLA / WCA Market Review ComReg reached the preliminary view that Eircom has SMP in the Regional WCA Market, with a market share in excess of 80% in Q1 2016 (see Figure 6 below). In Section 11 (paragraph 11.126) of the WLA / WCA Market Review ComReg reached the preliminary view that no undertaking was likely to have SMP in the Urban WCA Market. The rest of this chapter is discussed under the following headings:
- Market developments in the Urban WCA Market; and
 - Market developments in the Regional WCA Market.

4.2 Market developments in the Urban WCA Market

- 4.14 As set out in Section 11⁴⁸ of the WLA / WCA Market Review, in the Urban WCA Market, Eircom faces at least two alternative operators in each exchange area, capable of providing retail broadband services, absent regulation in the WCA Market. Eircom's market share in the Urban WCA Market is significantly lower

⁴⁶ SIRO - <http://siro.ie/siro-invest-e40-million-roll-6-new-towns-end-2016>

⁴⁷ See paragraph 1.36 of Section 1 of the WLA / WCA Market Review.

⁴⁸ Paragraph 11.25.

than in the Regional WCA Market. Eircom faces a number of competing networks and a significant indirect constraint from Virgin Media in the Urban WCA Market area. Please see Figure 5 on the preliminary market shares for the main network operators capable of providing services in the Urban WCA Market, absent regulation.

Figure 5: Market Shares, Urban WCA Market

	Eircom	Virgin Media	BT	Vodafone	SIRO
Urban WCA Market	⌘% ⁴⁹	⌘% ⁵⁰	⌘% ⁵¹	⌘% ⁵²	⌘% ⁵³

Source: Figure 27 of ComReg Document 16/96

4.15 In Section 11 of the WLA / WCA Market Review we reached the preliminary view that the Urban WCA Market was effectively competitive and therefore should be no longer subject to regulation. ComReg reached the preliminary view in Section 11 of the WLA / WCA Market Review that 88 exchanges should be deregulated based on a range of cumulative criteria relating to:

- (a) Minimum number of service providers;
- (b) Network presence;
- (c) Service providers market shares;
- (d) Network coverage of alternative networks; and
- (e) Reasonable additions.

4.16 In Section 10 (paragraph 10.157) and Appendix 5 (A5.58) of the WLA / WCA Market Review ComReg set out the proposed set of cumulative criteria that an Exchange Area must meet for consideration as to whether or not there are differences in competitive conditions compared to other geographic areas.

4.17 The 88 proposed exchanges areas currently part of the Urban WCA Market account for approximately 37%⁵⁴ of the premises in Ireland and which largely relate to exchanges in cities and large urban centres, where LLU operators and Virgin Media are present. See also Figure 7 below.

⁴⁹ Eircom’s market share is between 25% and 35%.

⁵⁰ Virgin Media’s market share is between 45% and 55%.

⁵¹ BT’s market share is between 5% and 10%.

⁵² Vodafone’s market share is between 5% and 10%.

⁵³ SIRO’s market share is less than 1%.

⁵⁴ See Figure 25 in Section 10 of the WLA / WCA Market Review.

4.3 Market developments in the Regional WCA Market

4.18 As set out in Section 11⁵⁵ of the WLA / WCA Market Review, in the Regional WCA Market, Eircom has a high market share (see Figure 6). While BT Ireland also provides WCA products using its WLA inputs, it has a limited presence in this geographic area. Virgin Media’s network does not have a significant presence in the Regional WCA Market. Similarly, including Vodafone’s market share in the Regional WCA Market, based on its planned use of VUA from Eircom in the WLA Market, is unlikely to change Eircom’s significant presence and market share in the Regional WCA Market. Figure 6 presents the likely market shares for the main network operators capable of providing services in the Regional WCA Market, absent regulation.

Figure 6: Market Shares, Regional WCA Market

	Eircom	Virgin Media	BT	Vodafone	SIRO
Regional WCA Market	≈ % ⁵⁶	≈ % ⁵⁷	≈ % ⁵⁸	≈ % ⁵⁹	≈ % ⁶⁰

Source: Figure 26 of ComReg Document 16/96

- 4.19 Therefore, in Section 11 of the WLA / WCA Market Review we proposed that in the Regional WCA Market Eircom should continue to be subject to ex-ante regulation.
- 4.20 Previously, in ComReg Decision D04/13⁶¹ (**‘2013 Bundles Decision’**), we defined two areas with varying prospective competitive conditions namely the larger exchange areas (**‘LEA’**) and outside the LEA (known as **‘Outside the LEA’**).
- 4.21 In the 2013 Bundles Decision, ComReg identified criteria which could be used to identify areas where uptake of unbundled services, whether LLU and / or virtual unbundling in NGA, is likely to be viable, and the potential for future other alternative infrastructure providers (**‘AIP’**) of high-speed broadband at a fixed location— which is currently mostly Virgin Media — which prospectively are more likely to permit a greater degree of competition and where regulation should be responsive to any prospective changes. The criteria in the 2013 Bundles Decision were fully consulted with industry as part of the consultation process

⁵⁵ Paragraph 11.20.

⁵⁶ Eircom’s market share is above 80%.

⁵⁷ Virgin Media’s market share is less than 10%.

⁵⁸ BT’s market share is less than 10%.

⁵⁹ Vodafone’s market share is less than 10%.

⁶⁰ SIRO’s market share is less than 1%.

⁶¹ ComReg Document No. 13/14: Price Regulation of Bundled Offers: Further specification of certain price control obligations in Market 1 and Market 4 dated 8 February 2013 (**‘Bundles Decision’**).

which concluded with ComReg publishing the 2013 Bundles Decision. ComReg is reviewing the existing LEA criterion, as part of the current review of the net replicability test ('**NRT**'), to assess whether any changes are required. A further consultation on Bundles is expected to be published shortly.

- 4.22 It is worth pointing out that unlike the cumulative criteria noted at paragraph 4.15 in relation to assessment of exchanges areas for inclusion in the Urban WCA Market, the criteria used to assess if an exchange area should become part of the LEA are based on individual qualifying criteria rather than cumulative criteria. Therefore, an exchange area only has to pass one of the criteria in Chapter 4 (paragraph 4.86) of the 2013 Bundles Decision (and subject to ComReg's approval) in order for it to become part of the LEA.
- 4.23 We propose to continue to differentiate our pricing remedies in the Regional WCA Market to take account of the varying structural and competitive conditions prospectively between the more densely populated areas and the rural areas. However, given ComReg's proposal in Section 11 and 14 of the WLA / WCA Market Review to deregulate 88 exchange areas in urban areas (corresponding to the Urban WCA Market), ComReg considers that these 88 exchange areas are no longer part of the mix of exchanges used to determine the boundary between the existing LEA and Outside the LEA in the context of the WCA markets, as they are currently known.
- 4.24 The exchange areas that remain within what was the LEA (i.e. after excluding those exchange areas that now fall into the Urban WCA Market) are referred to as "**Regional Area 1**" to reflect the fact that these exchange areas fall within the Regional WCA Market. Regional Area 1 currently includes 285 exchanges (i.e., the 369 exchange areas currently defined within the existing LEA minus 84 exchange areas that ComReg consider now fall into the Urban WCA Market). In addition, four (4) of Eircoms exchanges that previously fell Outside the LEA are now included in the Urban WCA Market. The remaining exchange areas that comprised "Outside the LEA" are now renamed as "**Regional Area 2**" to reflect the fact that these exchange areas fall within the Regional WCA Market. Figure 7 illustrates the link between the existing LEA and the new Regional Area 1 as well as the existing Outside the LEA and the new Regional Area 2 in the context of the WCA markets. It is important to note that the criteria used to establish Regional Area 1 going forward, a draft of which is included at Annex 10 of this document, will be assessed in the upcoming consultation on Bundles and respondents will be afforded the opportunity to provide their comments in this regard as part of that consultation process.

Figure 7: Relationship between existing LEA and new Regional areas

Description	No. of Exchanges	No. of premises within exchanges
2013 Bundles Decision (D04/13)		
Larger Exchange Area (LEA)	369	1,467,083
Outside the LEA	835	543,894
Total	1204	2,010,977
Adjustment to 2013 Bundles Decision		
Urban WCA Market (proposed deregulation)	88	772,209
Regional WCA Market:		
Regional Area 1*	285	697,138
Regional Area 2**	831	541,630
	1204	2,010,977

*LEA (369) excluding 84 exchanges from the Urban WCA Market

**Outside the LEA (835) excluding 4 exchanges from the Urban WCA Market

4.25 We discuss each zone under separate headings below.

4.3.1 Regional Area 1:

4.26 Regional Area 1 typically includes exchange areas being served with Eircom’s current generation retail broadband products, NGA services as well as services from an alternative infrastructure-based provider or LLU-based services. It is envisaged that the technical considerations used when determining whether an exchange is in the Regional Area 1, or not, will be considered in the upcoming Bundles consultation.

4.27 Retail competition between Eircom and Virgin Media in Regional Area 1 generally occurs between bundled offers of telephone calls, high-speed broadband access and television content. The main alternative operator, Vodafone, also offers bundles of broadband and calls which ultimately rely on Eircom for wholesale network inputs.

4.28 In Regional Area 1 there are also some operators who have deployed their own active equipment and use LLU (see paragraph 4.4). Alternative providers that rely on LLU-based inputs from Eircom may also be able to compete with Eircom’s retail broadband offerings. Where an operator has control over the technical specifications of the infrastructure i.e., bandwidth and contention they have scope to offer a service that is differentiated from the Incumbent’s. Access to the physical wholesale inputs (LLU) also gives the alternative operators greater control over the value chain, thus allowing them more flexibility in retail pricing. A significant difference between simple Bitstream reselling is the upfront and sunk investment of unbundling an exchange. For an operator using LLU in

Regional Area 1 the marginal cost of connecting an additional retail customer is low, since all the necessary investment has been made. These factors may help constrain Eircom's pricing power within the areas where these alternative operators are active i.e., usually within a particular exchange area where they have invested in unbundling capability.

- 4.29 While unbundling has been relatively limited in Ireland so far, an important development has been the entry of Sky to the Irish retail broadband market with very competitive retail offers. BT Ireland, the most significant LLU provider in Ireland, is providing a wholesale Bitstream access service to Sky.
- 4.30 In addition, as noted in paragraph 4.11 SIRO plans to build an FTTH network across 50 towns, reaching potentially 500,000 end users. SIRO should have presence in Regional Area 1 in the medium term. Prospectively, therefore further competition in the retail broadband market may come from offers that are not reliant on Eircom's active access services in the Regional WCA Market.

4.3.2 Regional Area 2:

- 4.31 Regional Area 2 corresponds to those exchanges which are in the more sub-urban, rural and remote areas of Ireland. This area has typically higher costs for potential entrants due to longer local loop lengths, greater distance to provide backhaul, and fewer economies of aggregation.
- 4.32 In Regional Area 2 Eircom may provide a WCA service over its copper network, but is unlikely to face any competing network operators. In Regional Area 2, broadband access, if at all available, is slow. In this area the NBP propose to rollout a fibre based network to provide download speeds greater than 30Mbps. Such state aid can only be made available in areas where commercial deployment is unlikely or has not been signalled by operators.
- 4.33 In Regional Area 2 the prospects for entry by a further LLU operator may be limited. DSL is an important access medium in this area. However, alternative DSL-based operators are almost entirely reliant on Bitstream from Eircom in order to provide their retail offering, with only a very small proportion of DSL-based subscribers using line share. Eircom is the main provider of wholesale fixed broadband services in Regional Area 2. This highlights a key structural difference compared to Regional Area 1, as there are fewer access alternatives available in Regional Area 2. The operators that do offer services in Regional Area 2 have less scope for product and cost differentiation compared to other suppliers in the retail broadband market. Hence, this provides only a limited competitive constraint on Eircom.
- 4.34 In terms of entry prospects in Regional Area 2, ComReg considers that they are limited — largely due to the less favourable cost and scale characteristics. While

Virgin Media focuses largely on upgrading its existing network they indicated in January 2017 that they would invest in an extra 200,000 homes in Ireland in order to revitalise stalled growth among its TV and broadband customer base.⁶² However, this investment is focussed on more large regional towns and not in the rural communities. The prospect of future LLU unbundling in Regional Area 2 is also remote (as take-up to date of LLU access has been limited). Further plans by Eircom to roll out NGA networks appears to be limited to Regional Area 1 although as noted at paragraph 4.8 Eircom has announced plans to roll out FTTH to 300,000 homes by 2020. ComReg will keep these developments under review.

- 4.35 SIRO plans to bring FTTH to areas not covered by either the Eircom or Virgin Media rollout. However, the SIRO rollout is more of a 'regional' rollout rather than a rollout of fibre to rural parts of Ireland and is more likely to form part of Regional Area 1. ComReg will keep these developments under review.
- 4.36 Therefore, currently in Regional Area 2 there is realistically only one fixed broadband provider, Eircom. This is unlikely to change absent state intervention (NBP). However, the timelines for the rollout of the NBP are currently unclear.

⁶² <http://www.independent.ie/business/technology/virgin-media-digs-in-for-fibre-battle-as-major-network-expansion-beckons-35378463.html>

Chapter 5

5 Appropriate Costing Methodology

5.1 Overview

5.1 In this chapter we further specify the costing methodology associated with the proposed cost orientation obligation imposed in the WLA / WCA Market Review for the following services:

- FTTC based NGA services (VUA and NGA Bitstream); and
- Current generation Bitstream and BMB services.

5.2 Background

5.2 While the imposition of a cost orientation obligation is linked to the competition problems (in particular concerns of excessive pricing) identified in the WLA / WCA Market Review, paragraphs 48 and 49 of the 2013 Recommendation specify that NRAs should not impose cost orientation on NGA wholesale products in the case where the following conditions apply:

- equivalence of inputs or obligations relating to technical replicability when equivalence of inputs is not yet fully implemented;
- obligations relating to the margin squeeze obligation;
- there exists a demonstrable retail price constraint.

5.3 In the 2013 NGA Decision ComReg considered that a cost orientation obligation was not appropriate given the then level of uncertainty associated with the rollout of FTTC, both in terms of costs and penetration levels. In addition, ComReg considered at that time that there was a sufficient degree of effective retail pricing constraints from cable and prospectively from LLU based retail and wholesale services (if the right regulatory protections were in place) to warrant a more flexible pricing approach. ComReg considered that this should be achieved by allowing the incumbent flexibility on wholesale next generation pricing in the then WBA market, subject to complying with a margin squeeze test against retail prices, while ensuring no foreclosure of LLU based retail or wholesale services. Therefore, a margin squeeze regime was then implemented as a means of encouraging investment in NGA by Eircom and other operators.

5.4 However, in the context of the recent WLA / WCA Market Review, ComReg considered that a cost orientation price control seems proportionate and justified for FTTC based NGA services for a number of reasons.

- 5.5 ComReg considered that recent price increases by Eircom for both standalone broadband services and for POTS based NGA services, as set out in paragraph 4.9, indicates that pricing constraints in relation to Eircom's retail and/or wholesale broadband prices, are of limited effectiveness and that existing price controls (i.e., margin squeeze obligation) need to be updated to reflect new circumstances. In particular, the constraint posed by copper based broadband is likely to have diminished as evidenced by the reduction in LLU volumes and the switch from copper to fibre based services in the NGA footprint. Cable alone cannot create a full retail constraint on Eircom's NGA products at the national level but only in geographically limited areas. SIRO's fibre to the building ('FTTB') coverage is likely to be very limited in the short to medium term. Therefore, alternative networks cannot generate competitive pressure across a sufficiently broad territory. In addition, prices are differentiated between networks. FTTB/H products are priced at a premium to FTTC products, which in turn are priced at a premium to CGA products. Therefore, price constraints between the different technologies are not sufficiently strong.
- 5.6 In addition, demand for FTTC based NGA services is now easier to forecast given the historic penetration data that is available since Eircom began deploying its fibre network in 2013. Therefore, it would be easier to determine forecasted costs and volumes associated with the provision of FTTC based NGA services.
- 5.7 We also considered that a cost orientation obligation for FTTC based NGA would ensure a consistent regulatory approach with the pricing of current generation SLU and LLU. Since NGA networks are in competition with copper networks, the consistency of pricing approaches between FTTC based wholesale products and current generation wholesale products helps operators to make an efficient choice as to the most optimal wholesale product. A cost orientation obligation for FTTC based NGA services should also provide the appropriate investment signals to market participants (i.e. that the prices set will incentivise efficient firm behaviour), while ensuring that prices are not excessive. Please see Section 8 and Section 13 of the WLA / WCA Market Review for further discussion on the reasons for adopting a cost orientation obligation for FTTC based VUA and FTTC based NGA Bitstream, respectively.
- 5.8 For current generation Bitstream services in the Regional WCA Market we also proposed to continue with the obligation of cost orientation, in the WLA / WCA Market Review. While there is a separate existing cost orientation obligation currently in place for current generation Bitstream services Outside the LEA we propose that such an obligation is not required going forward given that the proposed BU-LRAIC+ costs between the two areas (Regional Area 1 and Regional Area 2) are not materially different. Please see Chapter 9 for the proposed prices. We consider that going forward it seems more practical and proportionate to have one cost orientation obligation across the Regional WCA

Market (rather than in both the Regional WCA Market and in Regional Area 2) for current generation Bitstream services as the proposed prices for each area appear relatively similar.

- 5.9 As set out in Section 13 of the WLA / WCA Market Review, ComReg considers that the risk of excessive pricing remains in the Regional WCA Market. In the Regional WCA Market and absent regulation in the WCA Market, Eircom has a retail market share of \approx %.
- 5.10 The cost orientation obligation should ensure that Eircom can only recover its efficiently incurred costs which are relevant to the provision of WCA products, services and facilities in the Regional WCA Market. This should, in turn, encourage efficient investment in infrastructure by all market participants.
- 5.11 ComReg must take account of a number of factors, as set out in the Access Regulations, the Framework Regulations and the Communications Regulations Act 2002 (as amended) when further specifying a price control obligation. This is discussed in detail in Chapter 15 of this document in the context of the regulatory impact assessment ('RIA').
- 5.12 The respective discussion in this chapter is set out under the following headings:
1. Costing methodologies; and
 2. Applying costing methodologies to assets.

5.3 Costing Methodologies

5.3.1 Overview

- 5.13 The costing methodology determines which costs are included in the cost model(s) and how this is transformed into a unit price. The following questions are relevant in determining the appropriate costing methodology to adopt:
- What cost items should be included?
 - How should costs be assessed?
 - What model should be used to arrive at unit cost?
- 5.14 When considering the most appropriate methodology to apply in order to determine the costs, ComReg must balance a number of objectives, including: the promotion of competition; incentivising infrastructure investment; ensuring the appropriate cost recovery for Eircom; while ensuring the interests of end-users.

- 5.15 ComReg considers that infrastructure-based competition from OAOs has in theory the most potential to offer sustainable competition to Eircom in the provision of broadband to the benefit of end-users. In general, operators with their own infrastructure are better able to offer differentiated retail products and to set prices independently of Eircom as compared to those OAOs using WCA services. However, it requires significant investment to duplicate infrastructures in their entirety, thus this option will rarely be chosen by OAOs in the short to medium term nor by OAOs nationally. There is also a debate on whether this is desirable for society and whether it is feasible in the longer term to have duplicate access networks working in parallel given the lower economies of scale and scope (and therefore higher costs translating into higher prices) generated by the presence of competing local loops.
- 5.16 ComReg considers that infrastructure-based competition, by way of access to Eircom's loops, must therefore be promoted.
- 5.17 Given the economies of scale, infrastructure-based competition is more likely in the more densely populated parts of the country. More rural areas represent those areas which have less / no infrastructure based competition and represent areas which are prospectively unlikely to become as competitive as those exchanges in more densely populated areas.
- 5.18 As such, wholesale prices should be set in such way that OAOs are encouraged to make efficient infrastructure investment decisions.
- 5.19 In line with ComReg's statutory objectives in Section 12 of the Communications Regulation Act 2002 (as amended) and in Regulation 16 of the Framework Regulations ComReg must consider the following factors when determining the appropriate costing methodology to apply for the wholesale access services:
1. Promoting efficient infrastructure investment:
 - a) In Regional Area 1, Eircom may face some competitive pressure at the retail level where Virgin Media has rolled out its bidirectional cable network, where SIRO rolls out its FTTH network and where Eircom may also face retail and wholesale competition from OAOs that have unbundled Eircom's exchanges. ComReg considers that in Regional Area 1 Bitstream prices (current generation and next generation) should

be set in such a way that OAOs are incentivised to make efficient investment in infrastructure;

- b) For VUA the price should not deter investment in the alternative local loop. However, because duplication of the local loop and the presence of several operators at a street cabinet is not always desirable/feasible (due to the lack of economies of scale) and where alternative local loops (based on alternative technologies) are already in place, it is important to avoid over-encouraging alternative infrastructure investment.
- c) Regional Area 2 is representative of those exchange areas where there are typically higher costs for potential entrants due to longer local loop lengths, greater distance to provide backhaul, and fewer economies of scope/scale. In these areas the prospects for entry by a further LLU operator may be limited. DSL (or Bitstream) is an important access medium in Regional Area 2. Alternative DSL-based operators are almost entirely reliant on Bitstream from Eircom in order to provide their retail offering, with only a very small proportion of DSL-based subscribers using line share.

- 2. Avoid under-recovery of costs by Eircom;
- 3. Avoid over-recovery of costs by Eircom, especially in Regional Area 2 where Eircom's local loop and Eircom's core network are likely to be the only fixed networks available;
- 4. Ensure consistency across the investment ladder;
- 5. Maintain price stability; and
- 6. Take utmost account of the 2013 Recommendation.

5.20 ComReg considers that from a regulatory perspective it is important that the appropriate incentives are maintained to encourage OAOs to 'climb the ladder of investment'. In order for these incentives to exist, OAOs must have sufficient margins or 'economic space' between different wholesale products or 'rungs' on the ladder of investment. This should promote the development of effective retail competition which is capable of constraining the integrated incumbent on an ongoing and sustainable basis. As the European Commission has noted: *"Competing network infrastructures are essential for achieving sustainable competition in networks and services in the long run"*.⁶³

5.21 To achieve ComReg's regulatory objective of promoting efficient infrastructure investment and protecting the interests of end-users, it is important to ensure that

⁶³ Explanatory note accompanying Recommendation on relevant Product and Service Markets, C(2007) 5406.

there are appropriate protections and incentives in place for OAOs who choose to 'climb the ladder of investment' as opposed to acting as resellers.

- 5.22 The higher up the 'ladder' that a competitor ascends the more investment they must make. It is important that when such investment decisions are taken by competitors that they have a regulatory framework they can rely on to ensure investments are not undermined by anti-competitive behaviour. ComReg has ensured, and will continue to ensure, that the appropriate protection and incentives are in place to enable OAOs to climb this investment ladder — in particular, by ensuring that Eircom cannot squeeze competitors between the relative prices of its different wholesale products across and within regulated markets.
- 5.23 The remainder of this chapter is discussed under the following headings:
1. Appropriate cost standard;
 2. Historic costs or current costs; and
 3. Appropriate cost model.

5.3.2 Appropriate cost standard

- 5.24 The use of cost standards is the means by which costs are allocated to services with the purpose of allowing the operator to recover all the cost associated with its network.
- 5.25 Certain assets and resources are dedicated to unique services and therefore these associated costs are considered as a direct cost and can be recovered solely from those services. However, in the case of assets and resources that can be used by many different services rules are needed to inform the allocation of the related costs to the particular services that the assets/resources support:
- Joint costs are incurred by some but not all services (e.g., a voice platform that is used by call transit, call origination, call termination, but not by broadband services or leased lines services);
 - Common network costs are used by all services (e.g., common network costs of ducts and trenching are consumed by all fixed line services); and
 - Corporate overheads cannot be allocated to services using a specific allocation method (e.g., the costs of the Chief Executive's office would be allocated to all services).
- 5.26 The options for the appropriate cost standard for the purposes of a price control typically involve the concept of either:

1. Long run incremental cost ('**LRIC**') (or Long run average incremental costs ('**LRAIC**') or LRAIC plus a mark-up for common costs ('**LRAIC+**'));
or
2. Fully allocated costs ('**FAC**').

5.27 LRIC only includes the direct fixed, sunk capital and operating costs relevant to the increment of providing the service (or often referred to as 'pure LRIC'). As a result, this approach does not include recovery for common or shared costs (such as overhead, billing systems etc.) from other divisions of the Incumbent's business.

5.28 LRAIC typically includes all of the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run. 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 joint and common costs. LRAIC+ costs is the calculus faced by any operator when deciding to enter or expand. The main difference between LRAIC+ and LRAIC is that LRAIC+ includes a mark up to allow for the recovery of inter service joint and common costs such as corporate overheads, typically using an equi-proportionate mark up ('**EPMU**').

5.29 The economic rationale for applying Pure LRIC in a telecoms setting is that a particular service is not required to recover any common or shared costs. Pure LRIC has been used by NRAs in recent years to set the prices for wholesale voice call termination services on the basis that there is sufficient scope for the network operator to recover all shared and common costs across the remaining services it provides. However, the deployment of local loops in the access network usually represents the most significant network platform in terms of the fixed network operator's costs and features a large element of joint and common costs that must be shared by the various services it supports.

5.30 ComReg considers that LRAIC+ is the appropriate cost standard to encourage efficient investment decisions while ensuring that an operator is capable of recovering (but not over-recovering) all of its costs.

5.31 The European Commission in the 2013 Recommendation at Paragraph 30 specifies that:

"For the purposes of setting copper and NGA wholesale access prices where cost orientation is imposed as a remedy... NRAs should adopt a bottom-up long-run incremental costs-plus (BULRIC+) costing methodology which includes a bottom up modelling approach using LRIC as the cost model and with the addition of a mark-up for the recovery of common costs."

- 5.32 In the FAC approach the whole set of costs incurred by the regulated operator are typically allocated to products following allocation rules determined by the direct or indirect causality of costs with products. This approach includes fixed and common costs. The FAC approach results in a price signal which has the advantage of being relatively consistent with the recorded investments incurred by the Incumbent. The efficiency / entry signals depend on the cost appraisal and the choice between top down and bottom up, which is discussed below. However, where a FAC approach is adopted, care should be taken to ensure that inefficiently incurred costs are excluded.
- 5.33 FAC modelling is similar to LRAIC+ to the extent that it attributes all the common costs between the various services offered by the operator, such that they sum to the total of existing costs.
- 5.34 This means that for large increments, such as the whole local loop, the LRAIC+ would be similar to the FAC approach. However, the LRAIC+ and FAC results 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, while the FAC concept is applied to an existing operator and so runs the risk of including legacy inefficiencies, which need to be excluded.
- 5.35 For FTTC based VUA (and EVDSL) in the WLA market we propose to adopt the LRAIC+ approach. LRAIC+ includes appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. This approach should send the appropriate investment signals to alternative operators who may want to replicate the assets in question. In addition, the LRAIC+ would ensure consistency with the approach already used to establish the costs for SLU, in the 2016 Access Pricing Decision, which is a significant input cost for FTTC based VUA.
- 5.36 The main assets used in the provision of FTTC based VUA include SLU, E-Side fibre cables and joints, E-side trenches / chambers / poles, DSLAMs⁶⁴ and aggregation nodes. The SLU costs have already been determined based on LRAIC+ in the revised copper access model ('**Revised CAM**') in the 2016 Access Pricing Decision, while the costs of deploying E-Side fibre can be determined in a similar manner to the approach adopted to derive the costs of E-Side copper cables. As many of the same assets (E-Side trenches / chambers and SLU related assets) and network parameters (node locations, route lengths, etc. inform the deployment of E-Side fibre cables and joints) are required to provide FTTC based VUA, consistency regarding the treatment of costs is important for investment signals.

⁶⁴ Digital Subscriber Line Access Multiplexers ('**DSLAMs**').

- 5.37 Similarly, for FTTC based Bitstream, we consider that LRAIC+ should be used so as to provide the appropriate infrastructure investment incentives. The costs associated with FTTC based Bitstream include some of the same assets as those used for FTTC based VUA and therefore consistency is important. In addition, for FTTC based Bitstream there are also the costs for wholesale ethernet interconnect links ('**WEILs**') and backhaul. In determining the appropriate cost for FTTC based Bitstream, we must ensure that it sets the appropriate incentives for OAOs to move to VUA. Therefore, we propose to adjust Eircom's BU-LRAIC+ costs specific to the Bitstream element of FTTC based Bitstream e.g., backhaul costs and WEILs to reflect the market share of a similarly efficient operator ('**SEO**'), as a proxy for a REO. This is discussed in paragraphs 6.129 - 6.135 in Chapter 6 of this document.
- 5.38 For current generation Bitstream and BMB services in the Regional WCA Market, we propose to use the LRAIC+ costing methodology.
- 5.39 Previously in the 2014 WBA Pricing Decision we applied the FAC approach (rather than LRAIC+) for current generation Bitstream and BMB services on the basis that FAC was relatively consistent with the actual investments incurred and recorded by the Incumbent. The FAC approach was consistent with the HCA methodology adopted at that time, as they are both determined with reference to the recorded investments / costs in Eircom's accounts. Please also see paragraph 5.51.
- 5.40 In the context of this review and in order to prevent excessive pricing (particularly in Regional 2) while at the same time balancing the need to provide the appropriate investment signals (especially in Regional Area 1) to both Eircom and other operators, we consider that the LRAIC+ approach should be applied going forward in relation to current generation Bitstream and BMB services in the Regional WCA Market.
- 5.41 The LRAIC+ approach for current generation Bitstream and BMB services in Regional Area 1 would promote efficient infrastructure investment incentives to allow existing competition to grow, including a potential move to NGA services, while encouraging other alternative operators to enter the market. For Regional Area 2, where no new investments in current generation Bitstream are likely to take place and where the NBP is likely to be present in the medium to long-term, we consider that it timely to streamline the costing methodology across the Regional WCA Market (Regional Area 1 and Regional Area 2). Therefore, we propose to use the LRAIC+ for current generation Bitstream and BMB services in both areas (Regional Area 1 and Regional Area 2) while recognising that the objective of ensuring consumer access to broadband services at an affordable price is still the most important objective in Regional Area 2. Please see paragraphs 5.44 - 5.55 regarding the choice between current costs and historic costs.

- 5.42 The proposed LRAIC+ approach for core network costs for current generation Bitstream and BMB services in the Regional WCA Market will ensure consistency with the LRAIC+ approach that is already applied to the access network costs in the 2016 Access Pricing Decision. In addition, regulated leased line services, which are also provided across the core network are based on BU-LRAIC+ methodology. This ensures that services provided across the same network are priced consistently.
- 5.43 The proposed LRAIC+ approach also ensures a consistent costing methodology across current generation and next generation services where the proposed cost orientation obligation has been imposed. The LRAIC+ approach is consistent with Paragraph 30 of the 2013 Recommendation from the European Commission. Please see paragraph 5.31 of this document.

5.3.3 Historical costs or current costs

- 5.44 There are two options in terms of considering the appropriate cost base to adopt:
1. Current cost; or
 2. Historical cost.
- 5.45 The current cost approach values assets at the current market value and allows us to reflect the changes in asset prices. In addition, the current cost approach can be implemented either based on the Incumbent's accounting system in which case it is called current cost accounting or ('CCA') or on a bottom-up ('BU') model basis. Eircom no longer publishes its accounts on a CCA basis. The second approach enables us to reflect the costs that a hypothetical entrant would incur when investing at any particular point in a modern equivalent asset ('MEA'). In this case, where technology is changing rapidly, the price set for the use of a particular asset may not reflect the actual costs incurred (in the past). Hence, there is less of a direct relationship between the prices charged and the actual investment made.
- 5.46 The economic rationale for the current cost approach applied by means of a BU model is that by linking the value of the assets to newly deployed network it promotes efficient investment incentives. The current cost approach also ensures that the Incumbent recovers its future costs thereby encouraging efficient infrastructure investment by it.

- 5.47 The current cost approach is particularly relevant in the more competitive areas of the country i.e., Regional Area 1. In this area, ComReg considers that the BU-LRAIC+ approach should promote efficient infrastructure investment in the market place and encourage innovation in new and enhanced infrastructures by Eircom and other operators.
- 5.48 The European Commission in the 2013 Recommendation at paragraph 31 specifies that:
- “NRAs should adopt a BU LRIC+ costing methodology that estimates the current cost that a hypothetical efficient operator would incur to build a modern efficient network, ...”*
- 5.49 The HCA approach on the other hand uses the Incumbent’s costs, which reduces the chance of over or under recovery of costs as the value is linked to the actual investment made as opposed to the MEA. Some of the Incumbent’s assets may be fully depreciated but still in use and the HCA approach should ensure that Eircom is not over recovering the costs for these assets.
- 5.50 A key criterion in asset valuation is the principle of asset replicability. In other words, if there is no prospect of a competitor replicating the service in question (or bypassing the bottleneck with an alternative platform), it is reasonable to base the regulatory pricing on historical costs. Put another way, there may be a limited rationale to determine prices based on non-replicable infrastructure on replacement costs if this means that the Incumbent recovers more than the cost it actually incurred. The concept of asset replicability means that if there is actual investment the Incumbent will recover the cost of the asset, but if there is no investment and assets are “sweated” to get the maximum value from them then the Incumbent will not be compensated over and above the initial Gross Book Value. Therefore, this creates the appropriate investment signals for the Incumbent. This is also recognised by the European Commission in the 2013 Recommendation where they consider that reusable civil engineering assets e.g., ducts and poles, should be valued on the basis of regulatory asset base derived from the SMP operator’s accounts. Please see paragraph 5.84.
- 5.51 In the 2014 WBA Pricing Decision we decided that the HCA costs were more appropriate than the MEA / BU-LRAIC+ approach for current generation Bitstream and BMB services, especially Outside the LEA (now renamed as Regional Area 2 in the context of the Regional WCA Market). In 2014 we considered that the risk of using the MEA / BU-LRAIC+ approach could calculate the cost of a new network being built today and not the actual costs incurred by Eircom and therefore could reward Eircom for investments that did not / may not take place.
- 5.52 Going forward, Regional Area 2 is the likely footprint for the NBP deployment.

- 5.53 Our proposed costing approach, as discussed at paragraphs 5.79 to 5.88, should set the appropriate signals in Regional Area 2 as it recognises that assets that are not likely to be replicated for the purposes of a NGA rollout i.e., reusable assets (ducts, poles, trenches, chambers) should be determined by reference of actual costs from the SMP operator's accounts. On the other hand, assets which are likely to be replicated in Regional Area 2 for the rollout of NGA services i.e., non-reusable assets (cables, cabinets, final drops, MDFs, etc.) should be set by reference to replacement costs or BU-LRAIC+ in order to send the appropriate signals for NGA investment. This approach is also consistent with Paragraph 30 (BU-LRAIC+ approach) and Paragraph 34 (Indexed RAB for Reusable Assets) of the 2013 Recommendation. Please see paragraphs 5.31 and 5.84 of this document for further details.
- 5.54 The proposed costing approach also ensures consistency across similar services on the same (core) network and between CGA Bitstream and FTTC based Bitstream services.
- 5.55 In line with the proposed LRAIC+ costing methodology discussed at subsection 5.3.2 above, we propose to adopt the current cost approach (or MEA) for FTTC based VUA (including EVDSL), FTTC based Bitstream and current generation Bitstream and BMB services, for the reasons set out in subsection 5.3.3.

5.3.4 Appropriate cost model

- 5.56 Based on ComReg's preliminary view that LRAIC+ is the preferred costing methodology, ComReg must consider what type of model is appropriate to determine the costs of provision of the access services.
- 5.57 ComReg has considered the following two options:
1. A top down ("TD") model; or
 2. A bottom up ("BU") model.
- 5.58 A TD cost model uses accounting information of the incumbent to separate out the relevant costs down to a unit cost.
- 5.59 The top-down approach is better suited to achieve exact cost-recovery as it is linked to the actual investments made by the incumbent operator and recognises the extent to which the relevant asset base has already been depreciated⁶⁵. The main disadvantage of this option is that the accounting information may include inefficient costs incurred by the incumbent.

⁶⁵ Bottom up models calculate the replacement cost of the network without reference to the investment history of the incumbent operator.

- 5.60 TD models can be constructed on a HCA or CCA basis. For a TD model based on HCA, the net book values of relevant assets are derived from the Incumbent's fixed asset register and depreciated over their remaining useful life⁶⁶. When CCA is applied in a TD model, the relevant assets are re-valued at their current costs, assuming similar-aged assets. This can be done using indexation where an appropriate index is applied to the operator's historical costs values to express asset valuation in current terms. CCA can also be applied using an absolute valuation approach where the existing number of assets is multiplied by the current acquisition price. The MEA approach bases the unit cost on the current acquisition price of the most efficient modern-equivalent asset capable of providing the same services.
- 5.61 A BU model 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 as if the network was being built (either as it stands, or with improvements to the topology). This approach is associated with models that are aimed at promoting efficient entry, since the cost model can consider how a network would be built today, rather than modelling the actual network built.
- 5.62 A bottom-up model is developed by following three general steps:
- First, the services to be modelled are identified and data on the service demand are gathered (number and location of end users);
 - Second, the model designs the network by establishing which assets (equipment, cables, etc.) are required to provide the services and their related demand; and
 - Third, once the network has been designed, each asset is valued and depreciated, and operating and maintenance costs are added. A unit cost of usage can be derived (for example, cost per line and month or cost per connection or per migration from one service to another) through allocation keys.
- 5.63 As the valuation process is based on current asset prices, a BU model effectively determines the cost today of building hypothetical efficient network capable of delivering the assumed level of demand.
- 5.64 When modelling the efficient network, two approaches can be adopted:

⁶⁶ The regulatory asset lives of assets are intended to reflect the economic asset life and may differ from the statutory asset lives of assets.

- 1. Scorched node:** this approach takes as a starting point the nodes of the existing access network / core network of the Incumbent, such as the Main Distribution Frames ('MDFs'), and then builds the optimised network within the constraints of those existing nodes; and
 - 2. Scorched earth:** this approach takes the access network / core network topology without any constraints from the existing MDFs of the incumbent operator.
- 5.65 A scorched node approach is often the preferred approach by NRAs as it allows for the modelling of efficient costs and scale, whilst at the same time enabling costs and technology assumptions to be closely aligned with those actually faced by the regulated operator. In the Revised CAM in the 2016 Access Pricing Decision ComReg adopted the "scorched node" approach and used the location of Eircom's MDFs in its cost model for determining the charges for LLU and SLU. From the location of these MDFs ComReg, with the assistance of its consultants, TERA, modelled an efficient access network.
- 5.66 ComReg is of the preliminary view that the scorched node approach continues to be appropriate in the context of this review.
- 5.67 The main economic reason to use a BU model is the need to promote efficient infrastructure investment by alternative operators who may want to replicate the asset and to send the right signal to the market when networks need to be renewed (which is currently the case with the deployment of NGA networks). It is also more efficient to make forward-looking estimations based on expected levels of demand rather than relying on historical data.
- 5.68 As a BU model calculates the level of network costs on the basis of the quantity of equipment and infrastructure that an operator using efficient engineering rules would deploy to support an assumed level of demand, the engineering and economic aspect of BU models tend to lend themselves to the LRIC approach. The combination of LRIC with a BU model is one of the most commonly encountered practices in cost models.
- 5.69 However, it is important to consider the investments and expenditures incurred by Eircom based on the costs in its accounts to ensure the assumptions of the BU model remain realistic in light of the investments actually incurred.

- 5.70 A TD LRIC model does not fully encompass the engineering model and network redesign aspects of a BU LRIC model. A TD cost model uses the accounting information of the operator as a starting point and as a consequence the model is based on an existing network, which may not represent the most efficient network deployment. Consequently adjustments for potential inefficiencies in the top-down costs have to be considered as legacy issues and the age of historic assets can mean the costs of operating and maintaining a legacy network are higher than the costs that would be associated with the modern efficient network envisaged in the BU approach. Nonetheless, TD cost models can provide a useful starting point for assessing the level of operating costs that are appropriate for the BU model.
- 5.71 However, because TD models are constrained by the level of costing and operational data contained in the operator's information systems, they often lack the level of granularity required to adequately identify incremental costs. Even when operational and costing information is available at a regional and local level there can still be practical issues in attempting to incorporate and maintain such a level of detail in a TD model. For this reason the FAC approach is most frequently applied to TD models.
- 5.72 We propose to use the BU model in combination with the LRAIC+ costing methodology in order to determine the cost of provision of FTTC based VUA (including EVDSL), FTTC based Bitstream⁶⁷ and current generation Bitstream and BMB services, in the Regional WCA Market.
- 5.73 This ensures a consistent costing approach across the key wholesale access services e.g., LLU, SLU, pole / duct access, FTTC based VUA, FTTC based Bitstream and current generation Bitstream and BMB services. This approach is also consistent with Paragraph 30 of the 2013 Recommendation from the European Commission. Please see paragraph 5.31.

5.3.5 ComReg's Preliminary View

- 5.74 Eircom should ensure that the BU-LRAIC+ costing methodology is used to determine the costs associated with the provision of FTTC based VUA (including EVDSL) in the WLA Market and for FTTC based Bitstream and current generation Bitstream and BMB services in the Regional WCA Market.

⁶⁷ The Bitstream specific costs related to the core network are adjusted to reflect the scale of a similarly efficient operator (SEO) with a 25% market share. Please see Chapter 6 of this document for further details.

Q.2 Do you agree with ComReg’s preliminary view that the BU-LRAIC+ methodology should be applied to determine the appropriate level of costs associated with the provision of FTTC based VUA (including EVDSL) in the WLA Market and for FTTC based Bitstream and current generation Bitstream and BMB in the Regional WCA Market? Please provide reasons for your response.

5.4 Treatment of different asset categories

- 5.75 ComReg considers that it is necessary to consider if different costing methodologies should be applied to the different types of assets in the access and core networks.
- 5.76 Figure 8 summarises the assets / costs associated with FTTC based NGA services (and EVDSL) and current generation Bitstream and BMB services.

Figure 8: Assets / costs associated with the various services

Description	VUA FTTC	EVDSL	NGA Bitstream FTTC	Current generation Bitstream / BMB
Aggregation node (Backbone)			✓	✓
Wholesale ethernet interconnect links ('WEILs')			✓	✓
Backhaul			✓	✓
Broadband Remote Access Server ('BRAS')				✓
Inter aggregation node links (Remote VUA and Local VUA) ⁷⁰	✓	✓		
Wholesale specific costs	✓	✓	✓	✓
Aggregation node	✓	✓	✓	✓
Digital Subscriber Line Access Multiplexer ('DSLAM')	✓	✓	✓	✓
E-side fibre cables and joints	✓		✓	
Trenches / chambers / poles on E-side	✓		✓	
Sub loop	✓		✓	
Local loop		✓		

⁶⁸ Exchange launched very-high-bit-rate digital subscriber line ('EVDSL') means that the active VDSL equipment required to provide the broadband service is housed in an Eircom exchange building or equivalent. This includes Exchange Launched VUA and Exchange Launched Bitstream. Please see Chapter 6 of this document for further discussion on the treatment of EVDSL costs.

⁷⁰ Local VUA and Remote VUA are discussed in Chapter 6 of this document.

5.77 ComReg is of the preliminary view that the most appropriate way to determine the relevant asset costs for FTTC based NGA services and current generation Bitstream and BMB services is to determine a cost methodology for each asset and apply that methodology regardless of the service being provided.

5.78 ComReg considers that there are three main groups of assets to consider:

1. Reusable passive civil engineering assets: These are assets which can be reused for NGA and which include duct, trenches, chambers and poles on the distribution side ('**D-side**') and on the exchange side ('**E-side**');

2. Other passive local loop assets and non-reusable civil engineering assets: These assets include the network termination unit ('**NTU**'), final drops, D-side cables, E-side cables, cabinets, and main distribution frames ('**MDFs**') and / or optical distribution frames ('**ODF**'). These can also include passive civil engineering assets which cannot be reused for NGA because they cannot support new additional cables, for example. Therefore, ducts, trenches, chambers and poles on the D-Side and on the E-Side which cannot be reused for NGA are also included in this category; and

3. Active / other assets: These include Digital Subscriber Line Access Multiplexers⁷¹ ('**DSLAMs**'), broadband remote access server⁷² ('**BRAS**'), aggregation nodes, backhaul.

5.79 Each group of asset category is discussed in turn:

1. Reusable passive civil engineering assets:

5.80 In the 2013 Recommendation the European Commission distinguishes between reusable and non-reusable civil engineering assets.

5.81 The European Commission defines 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.*"

5.82 ComReg considers that reusable civil engineering assets in the context of this Draft Decision include duct, trenches, poles and chambers which can be reused for NGA (referred to as '**Reusable Assets**').

⁷¹ A DSLAM allows telephone lines to make faster connections to the Internet. It is a network device, located near the end user's location that connects multiple end user Digital Subscriber Lines (DSLs) to a high-speed Internet backbone line where multiple data streams are combined into one signal over a shared medium.

⁷² BRAS is equipment for providing access to aggregate bitstream or broadband data-streams. BRAS functionality can also be performed by NGA DSLAMs.

- 5.83 The fact that the Reusable Assets are both very costly to deploy and have long life-times means that their duplication should be avoided — as such parallel networks are not appropriate from an economic efficiency perspective. Therefore, no infrastructure based competition is expected to develop for these assets and cost recovery should be the key objective.
- 5.84 Paragraph 34 of the 2013 Recommendation sets out that the reusable civil engineering assets should be valued on the basis of a Regulatory Asset Base ('**RAB**') approach derived from the SMP operator's accounts as follows:
- "NRAs should value reusable legacy civil engineering assets and their corresponding RAB on the basis of the indexation method. Specifically, NRAs should set the RAB for this type of assets at the regulatory accounting value net of the accumulated depreciation at the time of calculation, indexed by an appropriate price index, such as the retail price index. NRAs should examine the accounts of the SMP operator where available in order to determine whether they are sufficiently reliable as a basis to reconstruct the regulatory accounting value. They should otherwise conduct a valuation on the basis of a benchmark of best practices in comparable Member States. NRAs should not include reusable legacy civil engineering assets that are fully depreciated but still in use."⁷³*
- 5.85 The Reusable Assets in the Revised CAM in the 2016 Access Pricing Decision are valued based on the net book value ('**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 – this approach is referred to as '**Eircom's Indexed Regulatory Asset Base (RAB)**'.
- 5.86 In Chapter 4 of the 2016 Access Pricing Decision we set out the details of how the RAB for Reusable Assets (poles, ducts, trenches) on the Eircom access network is calculated. We propose to use the valuation determined in the Revised CAM in the 2016 Access Pricing Decision for the Reusable Assets (poles, ducts, trenches) relevant in the provision of FTTC based VUA and FTTC based Bitstream.
- 5.87 In summary, pole costs are 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. In addition, there is a provision of an additional 8% for pole replacement due to NGA deployment based on BU-LRAIC+ costs.

⁷³ Paragraph 34 of the 2013 Recommendation.

- 5.88 Similarly, duct access costs are 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. In addition, there is a provision of an additional 5% for duct replacement due to NGA deployment based on BU-LRAIC+ costs.

2. Other passive local loop assets and non-reusable civil engineering assets

- 5.89 The European Commission defines non-reusable civil engineering assets as "*....those legacy civil engineering assets that are used for the copper network but cannot be reused to accommodate a NGA network.*"

- 5.90 ComReg considers that other passive local loop assets include NTU, final drops, joints, D-side cables, E-side cables, cabinets and MDFs. Non-reusable civil engineering assets include duct, trenches, poles and chambers which cannot be reused for NGA. The 'other passive local loop assets' and 'non-reusable civil engineering assets' are referred to throughout the rest of this document as '**Non-reusable Assets**'.

- 5.91 Unlike the Reusable Assets, the copper cables or Non-reusable Assets, especially in more densely populated areas, are likely to be replaced by optical fibre — at least on the E-side. ComReg considers that in these areas OAOs should be encouraged to invest in the alternative NGA-based infrastructure.

- 5.92 Paragraph 33 of the 2013 Recommendation sets out that the Non-reusable Assets should be valued on the basis of a Regulatory Asset Base ('**RAB**') approach based on replacement costs:

*"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."*⁷⁴

- 5.93 Paragraph 31 of the 2013 Recommendation further specifies that a BU-LRIC+ costing methodology should be used to determine the current costs:

*"NRAs should adopt a BU LRIC+ costing methodology that estimates the current cost that a hypothetical efficient operator would incur to build a modern efficient network, which is an NGA network...."*⁷⁵.

⁷⁴ Paragraph 33 of the 2013 Recommendation.

⁷⁵ Paragraph 31 of the 2013 Recommendation.

5.94 Therefore, it is clear that the 2013 Recommendation specifies that the calculation of wholesale access prices should be based on replacement costs using a BU-LRIC+ approach except for Reusable Assets. The BU-LRIC+ approach should construct a NGA network as NGA is the modern equivalent asset ('MEA') for copper. The BU-LRIC+ is defined in the 2013 Recommendation as:

".....the incremental capital (including sunk) and operating costs borne by a hypothetically efficient operator in providing all access services and adds a mark-up for strict recovery of common costs. Therefore, the BU LRIC+ methodology allows for recovery of the total efficiently incurred costs."

5.95 It is important to note that the BU-LRIC+ approach referred to in the 2013 Recommendation recovers the same level of costs as the BU-LRAIC+ approach that ComReg refers to throughout this Draft Decision. ComReg uses the term "BU-LRAIC+" throughout the rest of this document.

5.96 In Chapter 4 of the 2016 Access Pricing Decision we set out the details of how the Non-reusable Assets on the Eircom access network are calculated. We propose to use the valuation determined in the Revised CAM in the 2016 Access Pricing Decision for Non-reusable Assets (cables, joints, final drops, cabinets, etc.).

5.97 With regard to Non-reusable Assets, ComReg considers that it is important to promote efficient infrastructure investment, so that an OAO is encouraged to take an efficient investment decision. ComReg believes that the objective of promoting efficient infrastructure investment is best ensured by adopting a BU LRAIC+ methodology, based on replacement costs.

5.98 As well as promoting efficient infrastructure investment, ComReg considers that this approach also ensures consistency across the ladder of investment.

3. Active / other assets

5.99 In order to ensure that OAOs are encouraged to climb the ladder of investment and migrate to NGA based services, especially in more densely populated areas, the costs relating to Active assets need to promote efficient infrastructure investment.

5.100 The BU-LRAIC+ approach for active assets i.e., DSLAMs, BRAS, etc. should provide the correct pricing signals for replacement of such assets given the short lifetimes and the fact that they must be replaced more often than cables and civil engineering assets.

5.101 ComReg considers that the BU-LRAIC+ methodology is the appropriate methodology to adopt for active assets.

ComReg's Preliminary View:

- 5.102 For Reusable Assets, the RAB approach used in the Revised CAM in the 2016 Access Pricing Decision should be applied to the relevant assets.
- 5.103 For Non-reusable Assets, a BU-LRAIC+ methodology should be applied to the relevant assets.
- 5.104 For active / other assets, a BU-LRAIC+ methodology should be applied.

Q. 3 Do you agree with ComReg's preliminary views regarding the proposed costing methodology for Reusable Assets, Non-reusable Assets and active / other assets in the provision of FTTC based VUA (including EVDSL), FTTC based Bitstream and current generation Bitstream and BMB services? Please provide reasons for your response.

Chapter 6

6 Cost Modelling: NGA Cost Model

6.1 Overview

- 6.1 In Chapter 5 of this document we reached the preliminary view that in general the BU-LRAIC+ costing methodology should be used to determine the costs of provision of FTTC based VUA (including EVDSL) in the WLA Market and for FTTC based Bitstream in the Regional WCA Market. We proposed that Eircom's Indexed RAB should be applied in the context of Reusable Assets, as determined by the Revised CAM in the 2016 Access Pricing Decision.
- 6.2 In this chapter we discuss the proposed model used to determine the appropriate level of costs associated with FTTC based VUA (including EVDSL) and FTTC based Bitstream. We also discuss the proposed inputs and assumptions used in the underlying model.
- 6.3 In this Draft Decision we have taken as a starting point the costing information collated in the existing NGA margin squeeze model. While the existing NGA margin squeeze model is relevant for assessing potential margin squeeze it also determines the appropriate cost stacks for each of the relevant NGA services along the ladder of investment in order to assess the appropriate economic space between the various NGA services. We consider that these cost stacks in the NGA margin squeeze model should be used as a starting point to determine the appropriate BU-LRAIC+ costs for the provision of FTTC based VUA and FTTC based Bitstream services (we refer to this model throughout this document as the '**NGA Cost Model**'). The NGA Cost Model has been updated with the assistance of our consultants, TERA. In summary, the main updates to the model include an analysis of the latest costing information contained in Eircom's 2015/16 HCAs as well as the latest customer demand information, engineering assumptions and equipment cost data provided by Eircom. The main outputs of the NGA Cost Model are the proposed costs relating to FTTC and EVDSL services.

- 6.4 In addition, certain costs associated with the core network (as opposed to the access network) which are relevant cost inputs for the provision of FTTC based NGA services have been derived from the core network model described at Chapter 8 of this document. In particular, the cost of backhaul traffic for FTTC based Bitstream has been derived in the core network model (in Chapter 8) and used as an input to the proposed NGA Cost Model discussed in this chapter. In addition, the inter-aggregation link⁷⁶ costs and the link costs from the aggregation node to the exchange for VUA are also derived in the core network model and used as an input to the NGA Cost Model. This ensures a consistent approach for the treatment of similar costs common to both current generation and NGA services.
- 6.5 It is important to point out that while the objective of the NGA Cost Model is to determine the costs for FTTC services, the updated NGA Cost Model also considers the likely demand and costs relevant to all technologies provided over the NGA network i.e., FTTC, EVDSL and FTTH. In particular, access networks tend to include a large element of fixed and common costs that should be recovered over all the services sharing the network. Consequently, the envisaged deployment of FTTH networks and services gives rise to economies of scope for all NGA services as FTTH would be expected to absorb a share of these fixed and common costs. The deployment of FTTH services would also increase the level of traffic carried across the network giving rise to increased economies of scale and the FTTH deployment could also affect the level of demand for future FTTC and EVDSL services. All of these factors need to be considered when determining the overall level of costs that should be recovered from FTTC and EVDSL services.
- 6.6 However, we only intend to derive cost oriented prices for FTTC (including EVDSL) services as we believe we have reasonably robust information on the cost and demand characteristics for such services. In contrast, a large degree of uncertainty still prevails with regard to the costs of FTTH network deployment and the reach and uptake for FTTH services and so we propose to continue with a margin squeeze approach to setting FTTH prices, as discussed in Chapter 10 of this document.
- 6.7 The remainder of this chapter is discussed under the following headings:
1. Background;
 2. Network services to be modelled;
 3. Network architecture;

⁷⁶ This includes the link between Local VUA and Remote VUA as illustrated at Figure 10.

4. Service demand;
5. Network cost overview:
6. Costs specific to FTTC based VUA and EVDSL;
7. Costs specific to FTTC based Bitstream;
8. Determination of cost per service.

6.2 Background

- 6.8 To date, FTTC based VUA and FTTC based Bitstream services have been subject to a margin squeeze obligation pursuant to the 2013 NGA Decision (D03/13). Since 2013, the NGA margin squeeze model in the 2013 NGA Decision has been used to assess Eircom's compliance with its margin squeeze obligation for VUA and NGA Bitstream.
- 6.9 In this Draft Decision we have used the NGA margin squeeze model as a starting point in order to determine the appropriate BU-LRAIC+ costs for the provision of FTTC (and EVDSL) based NGA services, which we refer to as the NGA Cost Model. Please see paragraph 6.3.
- 6.10 The following changes have been made to the NGA Cost Model:
- A higher number of lines have been incorporated i.e., an increase in FTTx sites and number of lines;
 - Change in technology mix, to include exchange launched very high bit rate digital subscriber line ('EVDSL')⁷⁷ sites and FTTH lines;
 - Incorporation of the two variants of VUA i.e., Remote VUA and Local VUA;⁷⁸
 - Increase in the number of DSLAMs;
 - Update to costing data to reflect latest information provided by Eircom;
 - Changes in demand assumptions.

⁷⁷ See paragraphs 6.27-6.28.

⁷⁸ See paragraphs 6.16-6.19.

- 6.11 We propose to leverage from the work already done in the Revised CAM (per the 2016 Access Pricing Decision) in order to determine the costs of specific access network assets relevant to the provision of FTTC based VUA and FTTC based Bitstream, e.g., access route lengths, node locations, poles, ducts, D-side copper cables, etc. This means that the costs associated with SLU, LLU and E-Side fibres are primarily derived in the Revised CAM in the 2016 Access Pricing Decision.
- 6.12 We also requested information from Eircom as part of the NGA Cost Model update, including Eircom's demand forecast volumes by exchange and by technology, the detailed costs of operating the NGA network as reflected in the 2016 HCAs and the unit price of equipment. This data has been reflected as appropriate in the NGA Cost Model. Where no information was available from Eircom, TERA has made assumptions in the NGA Cost Model. These are discussed in more detail later in this Chapter.
- 6.13 In the remainder of this subsection we discuss the proposed services to be modelled, the proposed architectures, service demands and how the proposed costs associated with the provision of FTTC based VUA (including EVDSL) and FTTC based Bitstream have been determined.

6.3 Network services to be modelled:

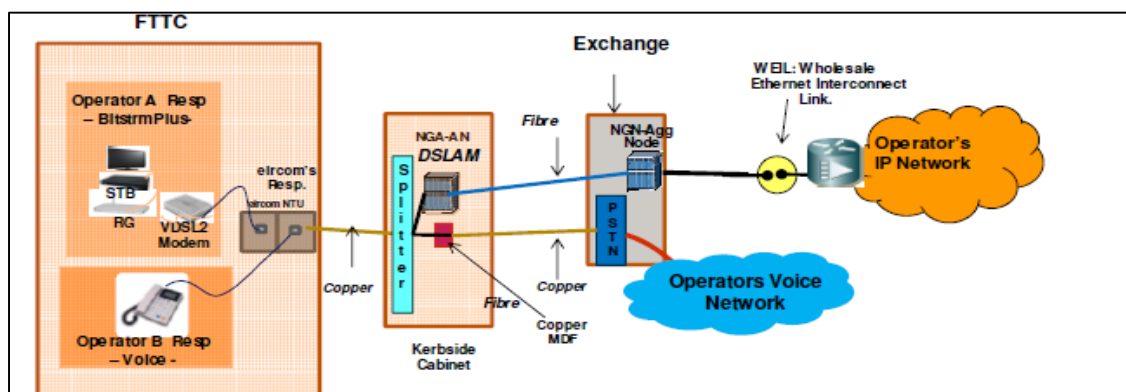
- 6.14 The NGA Cost Model is based on provision of the following services:

- 1) FTTC based VUA, which includes:
 - Remote VUA and Local VUA; and
 - EVDSL.
- 2) FTTC based Bitstream.

6.3.1 FTTC based VUA:

- 6.15 VUA is where the OAO rents the line from the retail end user's premises to the exchange from Eircom. To get the end user's broadband data from the exchange, together with the broadband data of its other end users aggregated at that exchange, onto its own network, the OAO further rents an interconnect product called a WEIL from the exchange to its own network. Therefore, with VUA, where an OAO has end users at many exchanges, it will require a WEIL service from each of these exchanges to its own network. This is illustrated graphically in Figure 9.

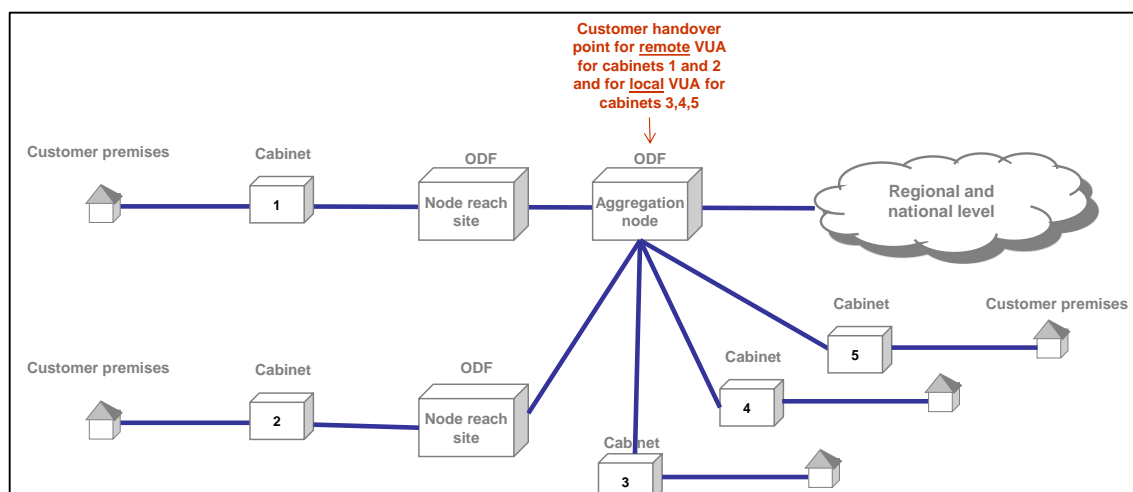
Figure 9: VUA Network Structure



- 6.16 Eircom offers two variants of the VUA product; Local VUA and Remote VUA.
- 6.17 Local VUA is where the main distribution frame ('MDF') and / or optical distribution frame ('ODF') and the end user traffic handover point (serving the aggregation node / WEIL) are co-located in the same exchange. Remote VUA is where the MDF/ODF and the customer traffic handover point (serving the aggregation node / WEIL) are not co-located in the same exchange.⁷⁹
- 6.18 Figure 10 illustrates the difference between Local VUA and Remote VUA. In a network with 5 cabinets connected to one aggregation node, cabinets 3, 4 and 5 are connected directly while cabinets 1 and 2 belong to other exchanges, which in their turn are connected to the aggregation node. Therefore, the provision of VUA at cabinets 3, 4, and 5 is known as Local VUA, while the provision of VUA at cabinets 1 and 2 is known as Remote VUA.

⁷⁹ The Main Distribution Frame (MDF) is a termination point within the local exchange where exchange equipment and terminations of local loops are connected via jumper wires. The Optical Distribution Frame (ODF) uses fibre cable.

Figure 10: Local VUA and Remote VUA



Source: TERA

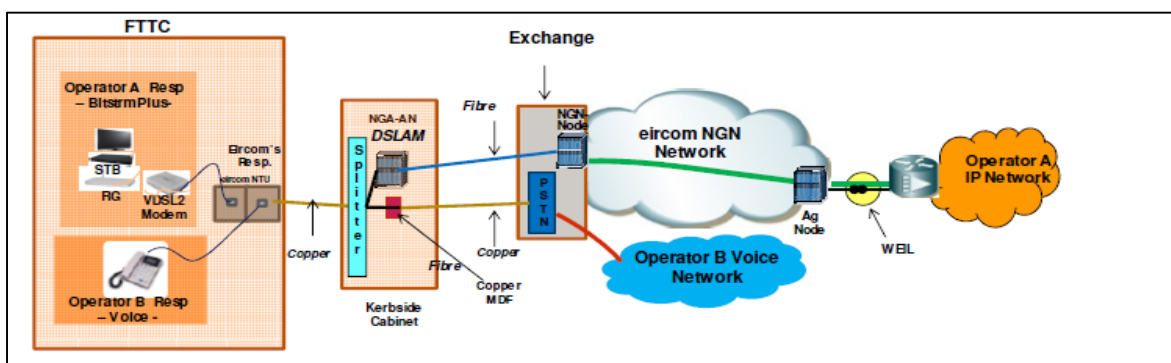
- 6.19 Local VUA should be available in 141 exchanges / MDFs / ODFs, on a forward looking basis as FTTC has not yet been deployed in all of these exchanges.⁸⁰ Similarly, Remote VUA should be available in a further 883 MDFs/ODFs, where these exchanges can be accessed through a parent exchange.
- 6.20 The NGA Cost Model reflects provision of Remote VUA and Local VUA at these specific sites.
- 6.21 Eircom also offers exchange launched very-high-bit-rate digital subscriber line (known as 'EVDSL'). EVDSL is basically a VDSL service where the active equipment required to provide the service is housed in an Eircom exchange building or equivalent. The shorter line lengths mean that the service characteristics of EVDSL are similar to FTTC and therefore ComReg proposes that the NGA Cost Model should reflect provision of the EVDSL service.

6.3.2 FTTC based Bitstream:

- 6.22 NGA Bitstream is where the OAO rents the line from the retail end user's premises to the exchange off Eircom and further rents backhaul from Eircom's exchanges to the OAO point of handover onto its own network. In the case of Bitstream, the OAO's entire end user's broadband data from the different exchanges can be aggregated together by Eircom over the Eircom network so that only one WEIL line is required from Eircom's aggregation node to the OAO's network. Therefore, with Bitstream, where an OAO has end users at many exchanges, it may only require one WEIL line from the aggregation node to its own network. This is represented graphically in Figure 11.

⁸⁰ We consider that VUA FTTC should be available in all exchanges where FTTC has been deployed.

Figure 11: NGA Bitstream Network Structure

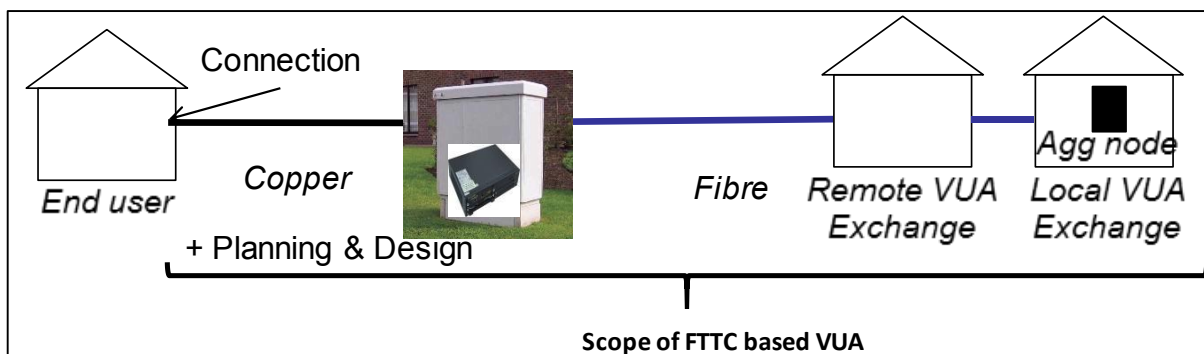


6.23 The main difference between VUA and NGA Bitstream is that VUA requires an individual backhaul rental from each VUA enabled aggregation node whereas with NGA Bitstream Eircom can aggregate all the OAO's broadband data on the Eircom network for a single point of handover for the OAO. Please see discussion on regional handover and national handover at paragraphs 8.34-8.35.

6.4 Network architecture

6.24 For FTTC based VUA, Figure 12 illustrates the network architecture for FTTC.

Figure 12: Network dimensioning for FTTC based VUA

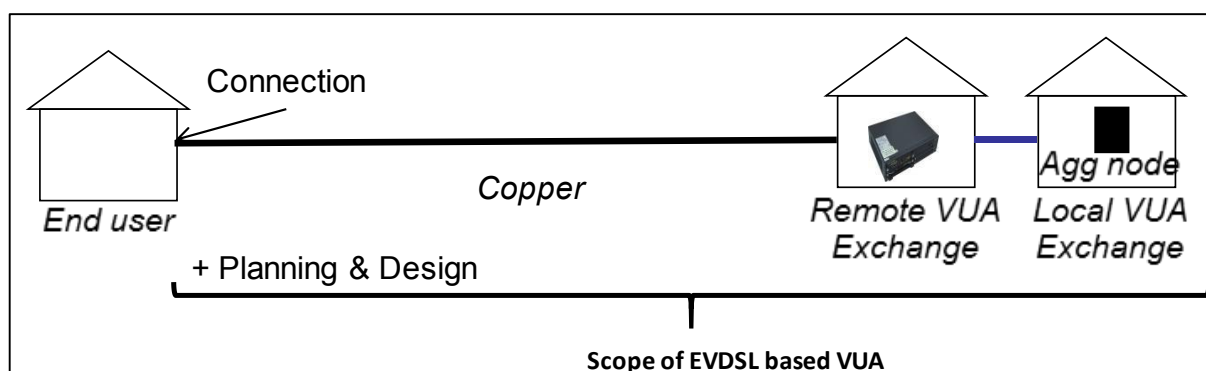


Source: TERA

6.25 The physical architecture of an FTTC NGA network is similar to that of the traditional CGA copper network. FTTC services use the existing D-Side copper infrastructure from the end user premises up to the cabinet with the main difference being that a DSLAM is located adjacent to the existing cabinet and fibre access cables are substituted for the copper cables in the E-Side of the traditional current generation copper network. As a result many of the relevant assets have already been modelled in the Revised CAM in the 2016 Access Pricing Decision.

- 6.26 Figure 12 also indicates that, in those cases where the Aggregation node is not located in the same exchange as the local access line terminates, an inter-exchange link back to the local aggregation node is required to enable a FTTC based VUA service. The costs of this link is derived in the NGN Core Model (see Chapter 8 of this document).
- 6.27 Figure 13 illustrates the network architecture for EVDSL.
- 6.28 The physical architecture of an EVDSL NGA network is even more similar to that of the traditional CGA copper network. The DSLAM is located in the local exchange rather than in a cabinet situated between the E-Side and D-Side networks therefore avoiding the need for an additional FTTC cabinet and E-Side fibre access.

Figure 13: Network dimensioning for EVDSL



Source: TERA

- 6.29 When modelling the network of an operator, a key choice relates to the technology to be modelled. In the BU-LRAIC+ model approach, assets are valued based on the cost of using a Modern Equivalent Asset ('**MEA**') built with the most efficient technology available.
- 6.30 According to Paragraph 31 of the 2013 Recommendation, the bottom-up model should be based on an NGA network:

“NRAs should adopt a BU LRIC+ costing methodology that estimates the current cost that a hypothetical efficient operator would incur to build a modern efficient network, which is an NGA network....”
- 6.31 In Section (41) in the preamble of the 2013 Recommendation, the European Commission noted that :

“An FttH network, an FttC network or a combination of both can be considered a modern efficient NGA network...”

- 6.32 While the objective of the NGA Cost Model is to determine the costs for FTTC services, we consider that it is important to assess the likely demand and costs relevant to all technologies provided over the NGA network i.e., FTTC, EVDSL and FTTH. This is consistent with the fact that FTTC, EVDSL and FTTH is being deployed by Eircom over the next few years. As noted in paragraph 6.5 the deployment of FTTH will give rise to economies of scope and scale that will have a bearing on the level of costs that should be relevant for FTTC and EVDSL services. Consequently, ComReg considers that it is appropriate to reflect FTTH service demands and costs in the NGA Cost Model.
- 6.33 However, we only intend to derive cost oriented prices for FTTC and EVDSL services as we believe we have reasonably robust information on the cost and demand characteristics for such services. In contrast, a large degree of uncertainty still prevails with regard to the costs and demand for FTTH services and so we propose to continue with a margin squeeze approach to setting FTTH prices, as discussed in Chapter 10 of this document.
- 6.34 The access network is dimensioned on a bottom-up basis using a “scorched node” approach and is based on Eircom’s exchange positions / locations as well as the street cabinet positions of Eircom. The NGA model benefits from the fact that all of this information was previously analysed in the Revised CAM. The Revised CAM established the shortest path to connect an end user to a street cabinet and the shortest path from each street cabinet to the exchange. This optimises the assets needed to rollout the network and reflects how network operators plan their networks. Please see Chapter 5 of the 2016 Access Pricing Decision and ComReg Document No 15/67⁸¹ for further details on the network dimensioning for the access network.
- 6.35 The proposed geographic scope of the NGA Cost Model is Eircom’s planned FTTC/EVDSL/FTTH footprint. This is discussed in more detail in Chapter 7 of this document. However, the proposed cost oriented prices determined in the NGA Cost Model only relate to FTTC and EVDSL services which are offered in areas that are not considered to be part of the Irish Government’s NBP.

⁸¹ Consultation and Draft Decision: Eircom’s Wholesale Access Services – Further specification and amendment of price control obligations in Market 4 and Market 5 and further specification of price control obligation in Market 2; dated 3 July 2015.

6.5 Service demand

6.5.1 Customers/ subscribers:

- 6.36 The NGA Cost Model is a BU model that dimensions the access network based on the level of demand that is expected to arise at each node or site location. In addition, NGA networks require investment in a range of assets which have long economic lives, so consideration has to be given as to how service demand is expected to evolve after the initial investments have been made as this will impact on when the operator is able to recover the cost of these investments. Consequently, the NGA Cost Model requires information on the level of demand for broadband services that is expected at each node location for each year that is being modelled as well as the technology (FTTC, EVDSL or FTTH) that will be used to support that demand.
- 6.37 As a starting point the NGA Cost Model references the information on the number of DSL lines for each Eircom site and each technology, for both current generation and next generation services. The data used in the current draft of the NGA Cost Model is based on an assessment of broadband volumes on Eircom's network in December 2016. ComReg also requested Eircom to provide a forecast of how broadband demand was expected to develop over the coming years both by technology and by site. Eircom's forecast data has been assessed by ComReg and TERA and we have made modifications to Eircom's forecasts to align with how we anticipate demand for broadband services might develop over the next decade. In arriving at this forecast ComReg has made the following assumptions:
- a. The technologies available at a site are based on Eircom's current / planned deployment of FTTC and EVDSL technologies and its planned roll-out of its FTTH network to 300k homes passed;
 - b. Each exchange location has two different NGA service launch dates, one for FTTC / EVDSL and one for FTTH;
 - c. An NGA take-up curve is used to model the rate of migration towards the forecast target after service launch with an assumption that 80% of the target is achieved by year 3 and 100% of the target is achieved after 8 years. Please see Annex 9 of this document for the details of the proposed take-up curve;
 - d. The earliest FTTC / EVDSL service launch date is 2013 and pre 2016 volumes are back-calculated with reference to the launch date for the site and the assumed take-up curve;

- e. Eircom has provided details on the numbers of homes passed in relation to its FTTH network at each MDF site and it is assumed that these are not served by its existing FTTC and EVDSL networks. Consequently, it is assumed in the NGA Cost Model that customer demand for these FTTH services will be from the existing current generation access ('CGA') broadband base or customers that do not currently subscribe to a fixed line broadband service;
- f. The target number of FTTH customers is based on the assumption that $\times\%$ of the houses passed will be connected within 8 years of service launch in an exchange area. FTTH migration is set to follow the take-up curve once FTTH is deployed at an exchange site;
- g. Existence of rival platforms will result in Eircom facing greater competition for NGA customers at a number of sites: it is assumed that on average rival platforms will attract in the region of 30% of the potential NGA base including Eircom's FTTC / EVDSL services;
- h. The NGA Cost Model assumes that the NBP networks will be able to offer services from 2021. It is assumed that for relevant sites 15% of the CGA broadband base will migrate to NBP with the remaining NBP base comprising of customers that do not currently subscribe to a fixed line broadband service;
- i. If no NGA lines have been reported at a site in December 2016 it is assumed that all lines at this site will be served by NBP or FTTH;
- j. The target FTTC / EVDSL line base is derived as the residual of Eircom's 2016 broadband (CGA and NGA) line base after allowance is made for the migration of existing broadband customers to FTTH, SIRO, Virgin Media and NBP;
- k. Where EVDSL is deployed at an exchange site it is assumed that, for small exchanges (less than 200 premises) $\times\%$ of the residual CGA base will migrate to EVDSL while the assumed rate is $\times\%$ for larger exchanges. It is assumed that EVDSL will follow the take-up curve once EVDSL is deployed at a site;
- l. The FTTC line base at each site is then set as the shortfall between the 2016 broadband line base and the forecast number of lines migrating to other platforms including Virgin Media, SIRO and NBP;

- m. When the uptake of new customers to Eircom's FTTH service is considered the model assumes that Eircom's NGA broadband customer numbers in 2026 are almost 4% lower than its 2016 broadband customer base as it is assumed that 15% of the 2016 base has migrated to other platforms including Virgin Media, SIRO and NBP.

6.5.2 Model timeframe and service volumes:

- 6.38 In general, a BU model is based on the costs and volumes of a hypothetical operator in the Irish market, and, in the case of the NGA Cost Model, the hypothetical operator is assumed to reflect Eircom's network configuration and market presence. Therefore, we have used Eircom's existing broadband volumes to inform the projection of the NGA volumes that could be expected to be served by this network. As outlined in the previous section at 6.5.1, in developing the NGA Cost Model ComReg has made a number of assumptions in relation to market developments, in particular, how the expansion of Virgin Media's network and the roll-out of SIRO's network might affect the demand for NGA services at various sites on Eircom's network. While the main focus is on deriving the cost of FTTC and EVDSL services, consideration is also given to the potential impact of Eircom's deployment of its FTTH network to pass 300k homes as well as the future impact of the NBP.
- 6.39 As a result of the preliminary demand assumptions outlined at subsection 6.5.1 ComReg has projected that, by 2026, some 15% of Eircom's existing broadband base will migrate to either the Virgin Media, SIRO or NBP platforms with the other 85% been served by Eircom's FTTC, EVDSL and FTTH networks as CGA volumes are assumed to fall to zero. In addition, Eircom's FTTH deployment should attract new fixed line broadband customers so that Eircom's 2026 broadband line base will be similar in size to the 2016 broadband base.
- 6.40 The NGA Cost Model considers a timeframe of 50 years from 2013 to 2062. The model start date of 2013 is chosen as this is when Eircom first launched NGA services. Typically, a BU-LRAIC+ model that uses economic depreciation to annualise costs should extend over a time-frame that is at least as long as the network elements (or assets) with the longest asset life. In the case of an NGA network the longest asset life tends to be associated with underground infrastructure such as duct and trenches and elements such as the cabinet plinth, all of which are assumed to have an asset life of 40 years. Consequently, we consider that a time-period of fifty years seems appropriate.
- 6.41 While the time-period of the model runs up to 2062 demand is assumed to stabilise after 2026. This is because any forecasts beyond this point would involve an increasing level of uncertainty. In addition, the fact that the economic depreciation algorithms discount the future years costs and traffic, any changes to demand beyond this point would have a negligible effect on current costs.

6.42 In the 2013 Recommendation the European Commission makes reference (in subsection 41⁸²) to the fact that the inflationary volume effect generated by the number of copper lines decreasing should be neutralised. Therefore, ComReg considers that for the purposes of determining the prices for FTTC and EVDSL based NGA services, the overall broadband service volumes in the NGA Cost Model should make allowances for migration to and from other platforms including Eircom's CGA and FTTH platforms and the potential for future customer growth. The draft NGA Cost Model assumes that overall broadband volumes on Eircom's network between 2016 and 2026 are assumed to reduce by less than 5%.

Q. 4 Do you agree with the proposed timeframe of the model and with the proposed approach and assumptions used in determining the service volumes / demand for FTTC based VUA (including EVDSL) and FTTC based Bitstream in the NGA Cost Model? Please provide reasons for your response.

6.5.3 Geographic coverage:

6.43 The NGA Cost Model is intended to reflect, insofar as possible, Eircom's planned NGA network and therefore includes the established NGA FTTC network and the planned deployments of EVDSL and FTTH services, including the 300k houses passed deployment in Regional Area 2⁸³. Therefore, the focus of the NGA Cost Model is on those exchanges / MDFs / ODFs where Eircom is planning to deploy NGA services and does not consider those exchanges / MDFs where the only NGA deployment expected to take place is as a result of the NBP.

6.5.4 Network dimensioning:

6.44 Network dimensioning determines the assets required based on the network design parameters, the projected levels of service demand for each technology, Eircom's network deployment to date and its future deployment plans.

⁸² ".....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.....".

⁸³ FTTH services demands are included in the NGA Cost Model to facilitate NGA network dimensioning, which is an essential part of the BU LRAIC+ modelling process, but we do not propose to use the model to establish the cost of providing FTTH services at this point.

FTTC / EVDSL / FTTH active equipment:

- 6.45 A DSLAM connects multiple end user digital subscriber line ('**DSL**') interfaces to a high-speed digital communications channel using multiplexing techniques.
- 6.46 Eircom provided ComReg with details on the number of FTTC DSLAMs and optical line terminations⁸⁴ ('**OLTs**') it has deployed in each MDF area and it also indicated that the deployment of FTTC DSLAMs is almost complete. This information from Eircom has been used as the basis for the number and location of FTTC DSLAMs and OLTs in the NGA Cost Model. The number of FTTC DSLAMs is initially based on Eircom's deployment of DSLAMs in 2016. Future DSLAM numbers are then amended depending on the projected demand expected at an exchange site. It is also assumed that the OLT deployment is near completion and that installations for future deployment will be as a remote OLT (with a connection to an existing OLT).
- 6.47 Eircom also provided information on its deployment plans for EVDSL and FTTH and this was combined with the projected service demand estimates derived in the service demand calculations by technology to determine the quantity of active components for the EVDSL and FTTH networks.
- 6.48 As with FTTC based DSLAMs, the EVDSL DSLAMs are dimensioned dynamically based on the projected number of EVDSL lines at each site. In the case of EVDSL, two types of DSLAMs are considered:
- \times port DSLAMs (similar to FTTC DSLAMs) for small sites with a projected EVDSL line count less than \times lines;
 - \times port DSLAMs for larger sites.
- 6.49 The network dimensioning of EVDSL DSLAMs also quantifies the number of shelves and port cards that are required to service the projected level of EVDSL demand.
- 6.50 The network dimensioning also considers the projected level of FTTH demand and assumes that:
- The number of installed OLTs will not change significantly as any new deployment at future sites will be connected to an existing OLT by "Remote OLTs";

⁸⁴ See paragraph 8.54.

- Other active components such as the number of gigabit passive optical network ('**GPON**') line cards, fibre splitters and fibre distribution point ('**DPS**') are dimensioned based on the projected level of demand at each exchange / MDF site.

6.51 Using Eircom's list of installed OLTs, the NGA Cost Model determines the OLT rollout with reference to the phasing contained in Eircom's 300k FTTH deployment plan.

Other network assets:

6.52 The aggregation node is the transmission equipment at the exchange for Local VUA. Eircom provided ComReg with the number and location of its access facing aggregation nodes it has planned for its NGA network and this was used to inform the dimensioning of Aggregation nodes in the NGA Cost model. The NGA Cost Model calculates the aggregation node cost to derive an average configuration price with reference to the bandwidth per user, the number of lines per exchange and the planned number of aggregation nodes.

6.53 The design rules for each aggregation node in an exchange includes the following, which is consistent with the approach in the NGN Core Model:

- 1 SR-12⁸⁵ chassis per exchange;
- Input / Output Multiplexer⁸⁶ ('**IOM**') line cards depending on the demand per aggregation node;
- Media Dependent Adaptor⁸⁷ ('**MDA**') equipment cards depending on the demand per aggregation node;
- Small form pluggable devices⁸⁸ ('**SFP**') depending on the demand per aggregation node.

6.54 The NGA Cost Model also includes a cost element associated with the design and planning of the FTTC and FTTH networks. Other cost elements include the Network Management Systems and the cost of migrating end users from CGA services to NGA services based on average cost information provided by Eircom.

⁸⁵ This is active equipment used at the aggregation node.

⁸⁶ A port on the Aggregation node.

⁸⁷ This terminates the media or type of cable connection used on the port of the Aggregation node.

⁸⁸ An interface shape or slot for the port connections.

- 6.55 The network dimensioning also determines the replacement cycle of the various network equipment types with reference to the asset life relevant to that equipment.

6.6 Network costs overview

- 6.56 Once the demand on the network has been used to dimension the network inventory the next phase is determining the total investment and the associated annualised cost. The annualised cost of the network is a blend of the proposed BU-LRAIC+ costs for Non-reusable Assets and active assets and Eircom's Indexed RAB for Reusable Assets (as derived from the Revised CAM).
- 6.57 The fixed line telecoms weighted average cost of capital ('**WACC**') of 8.18%⁸⁹ is also applied to the costs in the NGA Cost Model to allow for a reasonable rate of return in line with Regulation 13(2) of the Access Regulations.
- 6.58 In the context of Eircom's FTTC (or EVDSL) deployment we consider that there is no need to apply a risk premium. As stated in Section 6 of the European Commission Recommendation in 2010 on NGA⁹⁰:

"Investment into FTTN, on the other hand, which is a partial upgrade of an existing access network (such as for example VDSL), normally has a significantly lower risk profile than investment into FTTH, at least in densely populated areas. In particular, there is less uncertainty involved about the demand for bandwidth to be delivered via FTTN/VDSL, and overall capital requirements are lower. Therefore, while regulated prices for WBA based on FTTN/VDSL should take account of any investment risk involved, such risk should not be presumed to be of a similar magnitude as the risk attaching to FTTH based wholesale access products. When setting risk premia for WBA based on FTTN/VDSL, NRAs should give due consideration to these factors..."

- 6.59 It is recognised that there is a reduced investment risk for FTTC deployment. FTTC services can reutilise the D-Side copper network and the deployment of Eircom's FTTC network has already started since 2013. At this stage the majority of the associated investment in FTTC infrastructure such as cabinets, DSLAMs and E-Side fibre, has taken place and a significant uptake of these services has already been achieved. Similarly, EVDSL reutilises the copper loop thereby limiting the level of new investment required and as pricing and quality of service is similar to FTTC it is easier to make predictions on EVDSL penetration rates, while the use and cost of copper lines can be estimated with a reasonable level of certainty. Therefore, we propose that there is no need to apply a risk premium for FTTC or EVDSL deployment.

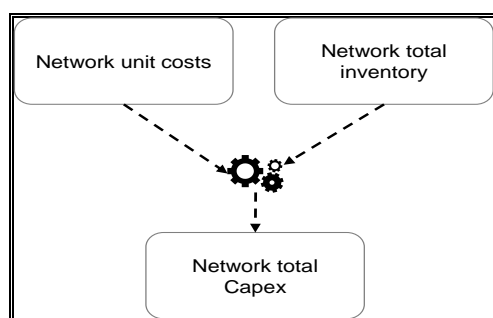
⁸⁹ ComReg Document No 14/136: Cost of capital; 18 December 2014.

⁹⁰ <http://eur-lex.europa.eu/LexUriServ/%20LexUriServ.do?uri=OJ:L:2010:251:0035:0048:en:PDF>

6.6.1 Capital costs

- 6.60 As set out in Chapter 5 of this document, ComReg has proposed that in general Reusable Assets (poles, ducts) should be based on Eircom’s Indexed RAB while Non-reusable Assets and Active Assets should be based on BU-LRAIC+ costs.
- 6.61 The total annual cost of the network is the sum of the annualised costs of the network plus the annual operating cost of the network.
- 6.62 Eircom’s capital costs (or CAPEX) associated with the access network including infrastructure (poles, trenches, ducts, etc.) and cables (both copper and fibre) has been determined in the Revised CAM in the 2016 Access Pricing Decision. We propose to use the relevant capital costs associated with the access network in determining the specific access network components such as SLU and LLU that form part of the FTTC and EVDSL based NGA services. This is discussed in subsection 6.7 and 6.8 below.
- 6.63 The total network investment (or capital costs) is derived by applying the unit costs of the assets to the network inventory (the BU assets required to run the network).
- 6.64 ComReg proposes that the capital costs should be derived by multiplying the number of assets by the unit costs adjusted to the current year using price trends. This is illustrated in Figure 14.

Figure 14: Determining capital costs



Source: TERA

6.6.2 Depreciation choices

- 6.65 The telecommunications industry is a capital-intensive industry which can require significant investments. An operator investing in a given network asset bears an upfront cost and expects that this asset will generate revenues over its useful life. Throughout its useful life, the value of this asset will naturally decrease as it ages. This loss of asset value throughout its useful life is reflected in the operator's profit and loss account as depreciation charges. In regulation, the cost of capital is also added to the depreciation charge to set regulated prices. Indeed, when making an investment, an operator will support financial costs related to the interests requested by its shareholders or the banks that are lending money to the operator. This financial cost must be considered to make sure that the operator is fully recovering its costs. The sum of the two items (depreciation charge and cost of capital of the year) is called the annuity.
- 6.66 The depreciation methods considered in setting regulatory prices include the following options:
- Linear depreciation / HCA;
 - CCA-operating capital maintenance ('**OCM**') or CCA-OCM;
 - CCA-financial capital maintenance ('**FCM**') or CCA-FCM;
 - Standard annuity;
 - Tilted annuity;
 - Economic depreciation.
- 6.67 The straight line/HCA depreciation is widely used in the statutory accounts but is not well suited to regulation as it does not sufficiently take into account changes in asset prices and does not provide price stability when regulated prices are based on this method. However, it facilitates comparison with accounts and can therefore be useful to reflect yearly changes in the level of investment of operators.
- 6.68 The CCA-OCM approach does not ensure cost recovery i.e., the sum of discounted annuities is not equal to the initial investment. Therefore, this approach is generally not used in setting regulatory prices.
- 6.69 The CCA-FCM method requires the revaluation of assets and this can be done in several ways, including the use of indexation. While the CCA-FCM can be implemented using an index, the annuities calculated with this approach do not increase with the index.

- 6.70 Standard annuities give a flat annuity (annuity = depreciation + cost of capital) which is a valid approach when asset prices and service demands are stable.
- 6.71 The tilted annuity approach is the most widespread approach used in electronic communications regulation. It calculates annuities which evolve with asset price trends which means that regulated prices derived from this method are evolving smoothly. This is relatively easy to calculate even if it requires assessing price trends which can be a difficult exercise.
- 6.72 Economic depreciation is the most robust method from a theoretical point of view but is also the most complex to implement because it requires several assumptions. When asset prices are changing fast and/or when the number of customers/level of demand is changing fast and/or operating costs are changing fast, the economic depreciation calculates regulated prices that remain stable over the economic lifetime of assets (tilted annuities only have this feature when asset prices are changing significantly but the level of demand is relatively stable).
- 6.73 The economic depreciation calculations aim to recover all incurred costs (operating and capital costs) in an economically rational way by ensuring that the total of the revenues generated by the cost oriented charges across the lifetime of the business are equal to the efficiently incurred costs, including cost of capital, in present value terms. This is achieved by applying a discount factor on future cash-flows, which is equal to the WACC.
- 6.74 When a bottom-up model is developed, all methods can be implemented but the most appropriate methods from an economic point of view are the tilted annuity and the economic depreciation approaches. If the number of end users using the assets at stake is not changing fast, then applying a tilted annuity to reflect asset price changes will be relevant. Figure 15 further expands on the relevance of the three main approaches depending on specific circumstances.

Figure 15: Depreciation methodologies and specific circumstances

		Standard annuity	Tilted annuity	Economic depreciation
Volume of outputs is stable	Asset prices are stable	X		
	Asset prices are evolving		X	
Volume of outputs is not stable	Asset prices are stable			X
	Asset prices are evolving			X

6.75 Considering demand take-up for FTTH, FTTC and EVDSL services is evolving, we consider that the economic depreciation methodology is the most appropriate approach (also called DCF approach) for NGA services in the NGA Cost Model.

6.6.3 Operating costs

6.76 Many of the cost inputs to the NGA Cost Model, such as costs of SLU, LLU and E-Side fibre, have already been determined in the Revised CAM in the 2016 Access Pricing Decision. Therefore, the costs of these network elements are based on the operating expenditure implemented in the Revised CAM.

6.77 The operating costs in the Revised CAM is based on an analysis of the operating expenditure extracted from Eircom's HCAs and includes efficiency adjustments as follows:

- Determining a reasonable line fault index ('LFI') representative of a new efficient network;
- Determining a reasonable number of direct front line staff required to handle this level of LFI;
- Adjusting the existing operating costs based on the efficient level of staff (at bullet point 2 above);
- Determining a reasonable level of actual indirect and common costs; and
- Interfacing the OPEX model with the main capital cost model.

6.78 As a result, the treatment of operating expenditure for the local loop related network elements is consistent between the Revised CAM for CGA services and the NGA Cost Model used for NGA services. Other network elements such as DSLAMs and aggregation nodes were not analysed in the Revised CAM. The direct, indirect and common operating expenditure associated with operating and maintaining these network elements are included in the NGA Cost Model. These are recurring costs that are incurred each year the asset is in use and need to be considered in any assessment of cost oriented prices. To evaluate these costs ComReg assessed the operating expenditure from Eircom's regulatory costing systems to determine the appropriate level of operating expenditure for inclusion in the NGA Cost Model.

6.79 This review focused on the costs that were reported against the Wholesale Broadband Access ('**WBA**') statement in Eircom's HCAs for 2016⁹¹. Eircom use an Activity Based Costing ('**ABC**') system to inform the cost allocations in its regulatory cost accounting models and the allocation basis in the accounts is dependent on the type of activity involved. For example:

- Some Repair and Maintenance costs are allocated to the WBA statement because they are associated with operating and maintaining infrastructure such as a DSLAMs or E-Side fibres;
- Other activity codes are used by field technicians when providing or upgrading broadband services or repairing faults associated with broadband services;
- General overheads include general management and finance activities and these can be considered as common costs for costing purposes.

6.80 The cost allocations in the regulatory costing systems were also analysed in terms of the network elements⁹² allocating to the WBA Statement to determine if the costs had already been considered in the Revised CAM or the NGN Core Model. We proposed that any costs already included in such models should therefore be excluded from the cost assessments in the NGA Cost Model. For example, the cost inputs from the Revised CAM for E-side fibres would already include the costs of NGA fibre maintenance so these costs would be excluded from the NGA Cost Model in order to avoid a double counting of costs. The NGA Cost Model also includes a BU assessment of the costs associated with the design and planning of an NGA network so network design and planning costs in the HCA Statements have also been excluded.

6.81 Having determined the appropriate level of operating expenditure for inclusion in the NGA Cost Model these operating costs are categorised as follows for modelling purposes:

- Costs such as equipment maintenance, power and network accommodation that could be associated with broadband related equipment are aggregated together and modelled on a per unit basis, for example a cost per DSLAM, cost per Aggregation node or a cost per OLT;

⁹¹ See Wholesale Access in Eircom's HCA Accounts 2016 page 10: (https://www.eir.ie/content/pdf/regulatoryinformation/HCA_Accounts_2016.pdf).

⁹² See Network Costs Market Summary in Eircom's HCA Accounts 2016, page22.

- Costs associated with repairing broadband service faults are also aggregated and modelled as a cost per line for both CGA and NGA lines as both are reported within the WBA statement;
- Costs associated with connections and provisioning were isolated to allow for separate assessment in the NGA Cost Model;
- Finally, the level of common costs associated with the NGA network elements allocating to the WBA Statement were identified and allocated as a cost per year for each year in the model time horizon. These costs are then annualised using the economic depreciation approach and derived as a unit cost per broadband service.

6.82 We consider that modelling the costs in this way means that some costs will vary as the quantity of network equipment changes, other costs can change in line with the number of services (so that the total costs increase if the volume of services increase even though the cost per service does not change) while the level of common costs modelled each year does not change even if equipment quantities or service volumes change. The NGA Cost Model does not include an index to reflect an upward or downward trend in year on year operating expenditure as we are of the preliminary view that while some elements of operating expenditure such as pay costs might increase such increases can be offset by general year on year efficiency gains.

6.7 Costs specific to FTTC based VUA / EVDSL based VUA:

6.83 In determining the level of costs associated with FTTC based VUA (including EVDSL) we must take account of the BU-LRAIC+ costs generally and Eircom's Indexed RAB for Reusable Assets, as proposed in Chapter 5 of this document, consistent with an operator similar to Eircom. This ensures that Eircom's investment incentives are maintained while also encouraging other operators to invest in VUA.

6.84 In line with our regulatory objectives at Section 12 of the Communications Regulations Act 2002 (as amended), Regulation 16 of the Framework Regulation and Regulation 13 of the Access Regulations, we must encourage infrastructure investment. In the context of this review it is important that VUA investment by OAOs is promoted as there is less use of Eircom's own network with VUA. Therefore, the price for FTTC based VUA should be less than the price for FTTC based Bitstream.

6.85 The main cost categories associated with the provision of FTTC based VUA and EVDSL are set out in Figure 16.

Figure 16: FTTC based VUA and EVDSL costs

FTTC based VUA	EVDSL
Sub loop unbundling	Local loop unbundling
<i>NGA link:</i> Trenches / chambers / poles on E-side E-side fibre cables and joints	
Inter-aggregation node link and exchange to aggregation node link (Remote VUA only)	Inter-aggregation node link and exchange to aggregation node link (Remote VUA only)
Faults	Faults
DSLAM	DSLAM EVDSL
Aggregation node	Aggregation node
Common costs per line	Common costs per line
<i>Other wholesale costs:</i> Migration Cabinet and design Management	<i>Other wholesale costs:</i> Migration - Management

6.89 As discussed in paragraphs 6.16- 6.18, FTTC based VUA is based on two variants; Remote VUA and Local VUA.

- 6.90 Given our proposal of cost orientation for FTTC based VUA, we consider that the costs of Local VUA and Remote VUA should be averaged in the overall FTTC based VUA price.⁹³ It is important to point out that the cost categories listed in Figure 16 for FTTC based VUA are the same for Local VUA and Remote VUA except for the Inter-aggregation node link costs and the exchange to aggregation node link costs which are only relevant to Remote VUA. For Remote VUA, there is the cost of taking the OAO traffic from the aggregation node to the Remote VUA site. This is discussed further in Chapter 8 of this document at paragraphs 8.83 - 8.87.
- 6.91 If the costs are averaged for Local VUA and Remote VUA, the broadband retail prices are also likely to be the same irrespective of the service used by the alternative operator, and therefore the risk of a digital divide is limited.
- 6.92 For EVDSL, we also propose to average the Local VUA EVDSL and Remote VUA EVDSL costs in the NGA Cost Model. Therefore, the FTTC based VUA costs will also include the average costs associated with EVDSL.
- 6.93 In the rest of this subsection we set out our proposed approach to determine the costs associated with the assets in Figure 16 for provision of FTTC based VUA and EVDSL services.

6.7.1 Sub loop unbundling costs / local loop unbundling costs:

- 6.94 SLU is the wholesale product which facilitates access to the sub loop.
- 6.95 In the 2016 Access Pricing Decision (D03/16), in the Revised CAM we calculated the cost associated with the provision of SLU. We set the price for SLU based on line lengths less than 1.5km. We considered that lines greater than 1.5km from a cabinet are unlikely to be technically capable of supporting the required standard of broadband of up to 30 Mbps.
- 6.96 In the context of this review and in determining the appropriate SLU costs associated with the provision of FTTC based VUA we have given further consideration to the options available. The cost of SLU varies depending on the scope of lines included in the calculation. If longer lines are included, the cost increases.

⁹³ As we understand it, Eircom currently charges the same price for Local VUA and Remote VUA.

- 6.97 While lines shorter than 1.5km may benefit by getting speeds of more than 30 Mbps, a line situated at 2.5km from the cabinet may still be able to get broadband speeds of up to 20 Mbps if a VDSL asset is installed at the cabinet. As a result end users may be willing to pay for FTTC services where they get a significantly improved speed (of say 10 or 20 Mbps) compared to their current legacy service. The impact of moving from 1.5kms to 2.5kms is less than €0.50 per line per month.
- 6.98 There is also the option of using longer sub-loop lengths, up to 5kms. However, the longer lines will give rise to higher costs and much lower speeds, and ComReg is of the preliminary view that the costs of FTTC should be consistent with the characteristics of the FTTC VUA services actually being provided by Eircom. Hence, it is reasonable to consider FTTC based VUA services provided on lines that are beyond 1.5km from the cabinet.
- 6.99 Therefore, we consider that there are a number of options in terms of choosing the appropriate SLU cost associated with the provision of FTTC based VUA, as follows:
- *Option A*: Determine SLU costs based on line lengths of up to 1.5km (consistent with the 2016 Access Pricing Decision);
 - *Option B*: Determine the SLU costs based on line lengths of up to 2.5km benefitting from the FTTC service; or
 - *Option C*: Determine the SLU costs based on line lengths up to 5kms.
- 6.100 ComReg is of the preliminary view that *Option B* is the appropriate approach to determine the SLU costs associated with the provision of FTTC based VUA. We consider that a line situated at 2.5kms from the cabinet may still be able to get broadband speeds of up to 20 Mbps if a VDSL asset is installed at the cabinet. As a result end users may be willing to pay for FTTC services where they get a significantly improved speed (of say 10 or 20 Mbps) compared to their current legacy service.
- 6.101 For EVDSL, we propose to use the LLU price, as recently determined in the 2016 Access Pricing Decision, as a reasonable proxy to reflect the cost of the local loop associated with the provision of EVDSL as it is our preliminary view that the LLU product is consistent with the local loops that are being used to support EVDSL VUA services. Please see Chapter 6 of the 2016 Access Pricing Decision for details on the calculation of the LLU cost/price.

6.7.2 NGA link: Trenches / chambers / poles costs on E-side

- 6.102 The network design parameters in the Revised CAM assume that that all E-Side cables are underground and that poles are only deployed on the D-Side of the access network. For trenches, chambers and ducts associated with the provision of FTTC based VUA on the Exchange side (E-side), we propose to use the valuation determined in the Revised CAM in the 2016 Access Pricing Decision. The valuation in the Revised CAM is based on the top down costs associated with the reuse of chamber, ducts and trenches for NGA purposes and the BU-LRAIC+ valuation for chambers, ducts and trenches that cannot be reused for NGA services.
- 6.103 As specified in the 2016 Access Pricing Decision duct access costs include the cost of chambers, ducts and trenches and are 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. In addition, there is provision of an additional 5% for duct replacement due to NGA deployment based on BU-LRAIC+ costs.
- 6.104 Please refer to Chapter 4 of the 2016 Access Pricing Decision for further details on the modelling approach for ducts, poles and chambers.
- 6.105 ComReg is of the preliminary view that the costs associated with chambers, ducts and trenches, used in the provision of FTTC based VUA, should be derived from the valuations determined in the Revised CAM in the 2016 Access Pricing Decision.

6.7.3 NGA link: E-side fibre cables and joint costs

- 6.106 As set out in Chapter 5 of this document, we propose to use the valuation determined in the Revised CAM in the 2016 Access Pricing Decision for Non-reusable Assets, including fibre cables and joints, in order to determine the costs associated with these particular assets used in the provision of FTTC based VUA.
- 6.107 As specified in Chapter 6 of the 2016 Access Pricing Decision, where copper cables (E-side) between an exchange and the street cabinet are likely to be replaced by fibre cables it is important to promote efficient infrastructure investment so as to inform investors' decisions on the E-side. Therefore, it is proposed to use the BU-LRAIC+ cost established in the Revised CAM.
- 6.108 Please refer to Chapter 5 of the 2016 Access Pricing Decision for further details on the modelling approach for fibre cables (including joints).

6.109 ComReg is of the preliminary view that the costs associated with E-side fibre cables and joints used in the provision of FTTC based VUA, should be derived from the valuations determined in the Revised CAM in the 2016 Access Pricing Decision.

6.7.4 Inter-aggregation node link and exchange to aggregation node link costs:

6.110 The inter-aggregation node link and the link between the exchange and the aggregation node represents the network element that connects the node reach site to the parent aggregation node. Both the node reach site and the aggregation node are located in exchanges in Eircom's core network and the costs associated with these network elements are determined in the NGN Core Model as described in Chapter 8 of this document. Please see Chapter 8, paragraphs 8.85-8.87. In order to ensure that the investments made by alternative operators in remote sites is protected, this inter-aggregation link is assessed in the NGN model based on the OAO (or REO) scenario (and not based on Eircom's costs).

6.7.5 Digital Subscriber Line Access Multiplexers ('DSLAM') costs:

6.111 A DSLAM connects multiple end user digital subscriber line (DSL) interfaces to a high-speed digital communications channel using multiplexing techniques.

6.112 In order to determine the DSLAM unit costs in the NGA Cost Model, we propose to use the gross replacement cost ('**GRC**') for each relevant piece of DSLAM equipment, including new active cabinet, plinth, existing copper cable remediation, copper link cable, duct to existing cabinet and cabinet commissioning. We then apply the appropriate regulated assets lives (e.g., 8 years in the case of active cabinets), with a mark-up for operating costs and an adjustment to take account of price trends.

6.113 Consequently, in the NGA Cost Model we have assumed the following in determining the appropriate DSLAM costs in the context of FTTC based VUA:

- The average cost of FTTC DSLAMs is based on information provided by Eircom and includes the costs of the plinth, copper cable remediation, the ESB connection and the provisioning of ducting and link cables to existing cabinets;
- The cost of shelves and port cards are also included in the average cost of the FTTC DSLAM;
- The cost of installing the FTTC DSLAMs is incurred in Year 1;

- The ongoing operating costs associated with the DSLAMs are derived as a percentage of the initial capital costs and are assumed to occur each year;
- The maximum capacity of a DSLAM in terms of the number of lines is based on Eircom's data;
- For each site, the number of cabinets is assessed based on the number of lines at the site and the assumed DSLAM capacity;
- There are no additional ESB connection costs or existing copper cabinet remediation costs required when cabinets are replaced at the end of their asset life.

6.114 Economic depreciation is also considered in the NGA Cost Model. As noted in Section 6.6.2 this is a multi-year approach that allows for changing network output over time in determining the appropriate rate of cost recovery. The monthly cost per subscriber for a DSLAM is calculated as follows:

- Sum of costs over the lifetime of the model with future costs discounted with reference to the WACC;
- Sum of demand in terms of subscribers over the lifetime of the model with future demand discounted with reference to the WACC;
- The proposed price per subscriber and per month is set so as to ensure the discounted costs equal the discounted revenues.

6.115 For EVDSL, the DSLAM costs are also based either on the unit cost data provided by Eircom or unit costs in the NGN Core Model. A similar approach to that described at paragraph 6.112 is undertaken to derive the unit costs for EVDSL DSLAMs. The GRC is determined for each relevant piece of EVDSL DSLAM equipment, including DSLAM racks, DSLAM shelf and DSLAM port cards. We then apply the asset life of 8 years with a mark-up for operating costs.

6.116 The NGA Cost Model assumes two types of DSLAMs are deployed depending on the projected number of lines at the each exchange site:

- \times port DSLAMs (similar to FTTC based DSLAMs) for small sites; and
- \times port DSLAMs for larger sites.

6.117 In the determining the costs for EVDSL based DSLAMs, we also take account of the number of shelves and port cards that are required for the level of demand as well as the power requirements and floor space requirements for each DSLAM.

6.118 The calculation of the economic depreciation for EVDSL based DSLAMs is consistent with the approach described at subsection 6.6.2 for FTTC based DSLAMs.

6.7.6 Aggregation node costs:

6.119 In costing the aggregation node the NGA Cost Model takes account of the GRC of the SR-12 and associated IOM line cards, MDA equipment cards, SFPs and ODFs, the regulated asset lives (for the ODF and the SR-12), a mark-up for operating costs, as well as the power requirements and floor space requirements.

6.120 In order to determine the aggregation node unit costs in the NGA Cost Model, we propose to use the GRC for each relevant piece of aggregation node equipment, including the ODF and the SR-12. We then apply the appropriate regulated assets lives e.g., 20 years in the case of the ODF and 6 years for the SR-12, IOM line cards, MDA equipment cards and SFPs. We then apply a mark-up for operating costs, an adjustment to take account of price trends and inclusion of power and floor space requirements.

6.121 The economic depreciation calculation is used to derive the monthly cost per user. Please see subsection 6.6.2.

6.7.7 Other wholesale costs:

6.122 Other proposed wholesale costs include:

- Migration costs;
- Cabinet design costs; and
- Management costs.

6.123 The proposed migration costs are based on the cost of connecting a FTTC and EVDSL premises, based on the estimated costs from Eircom. In the NGA Cost Model we then apply a tilted annuity based on a 20 year asset life in order to determine the monthly migration costs associated with FTTC and EVDSL.

6.124 For cabinet design costs, we have used the number of hours as provided by Eircom for FTTC cabinet design and derived a cost based on a cost per hour. We have not included any costs for cabinet design for EVDSL as the DSLAM is located in the local exchange and does not require an additional cabinet to be deployed.

6.125 The proposed network management costs in the NGA Cost Model relates to the Huawei management system. The costs are based on data received from Eircom.

6.126 ComReg is of the preliminary view that the proposed approach set out at paragraphs 6.36 to 6.125 is appropriate for determining the demand and cost inputs associated with FTTC based VUA and EVDSL services.

Q. 5 Do you agree with ComReg’s proposed modelling approach for determining the demand and costs inputs associated with the provision of FTTC based VUA, including Remote VUA, Local VUA and EVDSL services? Please provide reasons for your response.

6.8 Costs specific to FTTC based Bitstream

6.127 Figure 17 sets out the cost categories associated with the provision of FTTC based Bitstream.

Figure 17: FTTC based Bitstream costs

FTTC based Bitstream
VUA FTTC assets (at subsection 6.7)
WEIL
Backhaul (including core node / backbone costs)

6.128 As noted in paragraph 6.84, our objective is to encourage investment in VUA as it means that OAOs are less dependent on Eircom’s network.

6.129 As set out in Chapter 5 of this document, the BU-LRAIC+ approach is appropriate for promoting efficient infrastructure investment for FTTC based NGA services. However, in order to ensure that we set the appropriate incentives for OAOs to move to VUA, we propose to make an adjustment to Eircom’s market share in order to reflect an operator with a 25% market share. In addition, we propose to adjust Eircom’s BU-LRAIC+ costs specific to Bitstream e.g., backhaul costs and WEILs, in order to reflect a hypothetical operator with a 25% market share. This adjustment reflects the costs of a similarly efficient operator (**‘SEO’**), which is a reasonable proxy for a reasonably efficient operator (**‘REO’**).

- 6.130 A SEO means an operator which shares the same basic cost function as Eircom but does not yet enjoy the same economies of scale and scope as Eircom. The REO is similar to the SEO standard given that they both reflect the fact that OAOs have not achieved the same economies of scope and scale as the SMP operator and this needs to be reflected in the margin squeeze test.
- 6.131 In practice, accurate verifiable OAO data is difficult to obtain and to date we have estimated a hypothetically efficient operator's appropriate costs by taking Eircom's costs as a starting point. The information available to us based on Eircom's costs has been more reliable and robust, especially given Eircom's regulatory accounting obligations. Eircom's costs are then adjusted to reflect the lower level of economies of scale and scope available to a hypothetical entrant with a retail broadband market share of 25%. ComReg believes that there is no material difference between the value of cost inputs based on REO and SEO.
- 6.132 Going forward we are considering the use of REO data, depending on reliable and robust costing data from OAOs. In the absence of such data, we intend to continue to use Eircom's costs adjusted to reflect lower level economies of scale / scope, known as SEO. We consider that this approach should be a good proxy for REO based estimates.
- 6.133 ComReg considers that to use Eircom's unit costs (EEO cost base) based on a larger installed customer base would not encourage VUA based entry and therefore would not encourage appropriate infrastructure competition. This would result in OAOs remaining on Bitstream to provide retail broadband products, which would reduce the potential for market differentiation and dynamic efficiency gains to the detriment of end users.
- 6.134 We consider that the proposed 25% market share should represent a hypothetical operator in the retail broadband market. The market share adjustment would result in lower line volumes being considered in the SEO scenario relative to the Eircom's volume base. As a result we would expect unit costs to be higher given the high level of fixed costs that is typical of telecoms networks.
- 6.135 Therefore, the proposed cost for FTTC based Bitstream is based on the sum of:
- The VUA cost stack (discussed at subsection 6.7) based on Eircom's BU-LRAIC+ costs⁹⁴, plus

⁹⁴ Except for the link cost between the Remote VUA site and the Local VUA site which is adjusted for a SEO.

- The BU-LRAIC+ costs for WEILS and backhaul costs, adjusted for the scale of a SEO with a 25% retail broadband market share.

6.136 In the rest of this subsection we set out our proposed cost modelling approach in determining the BU-LRAIC+ costs associated with Figure 17 for provision of FTTC based Bitstream service.

6.8.1 VUA FTTC costs:

6.137 With regard to the costs associated with FTTC based VUA assets, please see paragraphs 6.83-6.126. Please note that the FTTC based VUA costs are based on the BU-LRAIC+ costs of Eircom and are not reflective of a SEO.

6.8.2 WEIL costs:

6.138 WEIL is the interconnection service provided by Eircom which provides a handover for various wholesale products including its NGA and NGN wholesale products.

6.139 The annual WEIL cost is derived with reference to the prices charged by Eircom for a 10GB customer sited handover WEIL service. The model assumes the annual rental is based on a 2km link located in Dublin and the initial connection costs is recovered over a five year period to derive the total annual cost.

6.140 We propose adjusting these costs to reflect a SEO with a 25% retail broadband market share.

6.8.3 Backhaul costs:

6.141 The NGA Cost Model assumes that each aggregation node has a design capacity of 10 Giga Ethernet ('GE') ports and we assume that the maximum utilisation factor is $\times\%$ to give an average port capacity of \times per aggregation node. The number of core nodes required in the network can then be derived with reference to port capacity per aggregation node and the number of aggregation nodes in the network.

6.142 An average capital cost per core node based on information provided by Eircom is applied to the derived number of core nodes to determine the capital expenditure or GRC. The associated annual operating expenditure is derived as a percentage of the GRC.

6.143 The number of subscribers using the core nodes is based on an SEO scenario with 25% market share. An economic depreciation algorithm is then used to derive an average cost per subscriber.

Q. 6 Do you agree with the proposed inputs and assumptions in the NGA Cost Model for determining the costs associated with the provision of FTTC based Bitstream? Please provide reasons for your response.

6.9 POTS based NGA services

6.144 When a voice service is sold with VUA or NGA Bitstream we refer to it as a plain old telephony service (**POTS**) based NGA service.

6.145 Currently, the price charged by Eircom for a POTS based NGA service is based on the current price for single billing wholesale line rental (**SB-WLR**) (currently set at €15.91 for 2016/17 as per the 2016 Access Pricing Decision) and the basic POTS based rental price for VUA / NGA Bitstream (currently set at €8.09 since 1 September 2016 as per the wholesale Bitstream access reference offer price list on Open Eir’s website). Therefore, the basic POTS based NGA service is currently set at €24.

6.146 Given our proposal to move FTTC based NGA services to cost orientation we have assessed below the costs we consider should be recovered for the provision of a POTS based FTTC NGA service going forward.

6.147 The main difference between a POTS based VUA service and the FTTC based VUA service is that POTS based VUA requires access to a full copper local loop and to a POTS line card in the local exchange. Therefore, for FTTC, the incremental copper loop costs relevant to POTS based VUA can be derived as the difference between the cost of SLU that is recovered in the FTTC based VUA charge and the full costs of LLU as represented by the cost oriented LLU price. The cost of the POTS line card is also part of the SB-WLR price and is derived in the Revised CAM.

6.148 For EVDSL based VUA services the incremental cost should only be the cost of the POTS line card as the full LLU cost is already recovered in the EVDSL charge.

6.149 Consequently, we propose that the average proposed additional costs associated with a POTS based NGA service (VUA or NGA Bitstream) should be a weighted average of the additional costs for FTTC based VUA service and the EVDSL based VUA service as represented in the following table.

Figure 18: Additional POTS based VUA Costs

	EVDSL	FTTC
LLU -SLU		✓
POTS line card	✓	✓
Weighting	x %	1-x %

6.150 Based on the relative VUA line volumes assumed in the NGA Cost Model ComReg has estimated the additional costs associated with the POTS based FTTC NGA services to be €4.96.

Q. 7 Do you agree with the proposed approach for determining the port rental costs for POTS based FTTC NGA services going forward and the proposed additional port rental price for POTS based FTTC services of €4.96? Please provide reasons for your response.

6.10 Determination of cost per service

6.10.1 Cost model outputs:

6.151 As discussed in subsection 6.7, the NGA Cost Model determines the specific network categories (LLU/SLU, E-Side fibre, faults, DSLAM costs, Aggregation Node, migration costs, etc.) associated with each of the NGA services in the model (FTTC, EVDSL, FTTH). The total annual cost is the sum of the capital expenditure associated with each network category plus the annual operating costs.

6.152 Section 6.7 also describes how a cost per subscriber per month is derived for each of these cost categories based on either the output of the Revised CAM (e.g. SLU, LLU, E-Side Fibre) or in the NGA Cost Model using economic depreciation (e.g. DSLAM, aggregation node), or in the NGN Core Model (for Bitstream related backhaul costs). The NGA Cost Model also determines the costs depending on the footprint of exchanges chosen i.e., Local VUA sites or Remote VUA sites as well as regional or national handover. We have further considered the footprint options for setting the appropriate FTTC based NGA prices in Chapter 7 of this document.

6.153 Once the cost per subscriber per month for each network category is derived it is then possible to derive a cost for each FTTC based NGA service (including Remote VUA and Local VUA and EVDSL based services) by summing the network categories that are relevant to that service. The average cost per service for each of the FTTC based NGA services in the NGA Cost Model is then derived by weighting the results for the individual services by the forecast number of lines for those services.

6.10.2 Determination of prices: average price or price per year

6.154 As discussed in subsection 6.6.2 the NGA Cost Model uses an economic depreciation approach to derive the annual costs of NGA services. Economic depreciation is determined for each network component and considers both changes in asset prices and changes in service demand which in turn allows for a stable average cost per subscriber per month across the model timeframe.

6.155 When calculating economic depreciation the NGA Cost Model calculates an average cost that is constant for every year of the cost model or a price that evolves in line with the changes to the price of the underlying network asset.

6.156 Consequently, ComReg considers that there are three key options in terms of setting the prices for FTTC based NGA services in this Draft Decision as follows:

- Option 1: Determine a price per year for each service;
- Option 2: Determine one average price for each service over the price control period; and
- Option 3: Use a glide path.

Option 1: Price per year for each service

6.157 Option 1 means determining the price for each service each year.

6.158 This Option would mean that the price would change every year over the price control period.

6.159 The NGA Cost Model and NGN Core Model already estimate the annual costs for each service and therefore it is easy to determine a consistent monthly or annual charge for each year of the price control period.

6.160 This approach would be consistent with the approach taken in the 2016 Access Pricing Decision where we have set a monthly rental price for each year of the control period.

6.161 We consider that determining a consistent monthly or annual charge for each year of the price control period achieves the objectives of price certainty, stability and predictability.

Option 2: Average price for each service

6.162 Option 2 means determining an average price for each service over the price control period (over the period 2017 to 2020).

6.163 This Option may avoid the administration burden and cost associated with changes to billing systems each year.

6.164 However, ComReg's objective is to provide the appropriate price signals to operators, including Eircom, over the price control period. An average price e.g., a single monthly or annual charge over the entire price control period may lead to a price spike at the start of the next regulatory period as the prices may need to be adjusted to reflect appropriate costs.

6.165 This approach would be inconsistent with the 2016 Access Pricing Decision where we have specified monthly rentals for each year of the price control period for such access services as LLU, SLU, SB-WLR and SABB Outside the LEA (or Regional Area 2).

Option 3: Use a glide path

6.166 Option 3 would mean using a glide path to set prices for services over time.

6.167 ComReg consider that this Option may create a divergence between revenues and actual costs incurred as the prices over the control period are not set by reference to the actual costs derived from the model.

6.168 ComReg is of the preliminary view that a consistent monthly or annual charge for each year of the price control period should be apply in line with the annual costs in the NGA Cost Model and the NGN Core Model. The price control period is discussed in Chapter 12 of this document.

Q. 8 Do you agree with ComReg's preliminary view that a consistent monthly or annual charge should apply for each year of the price control period in relation to the NGA Cost Model and NGN Core Model? Please provide reasons for your response.

6.169 The pricing options considered by ComReg in order to set the appropriate prices for FTTC based NGA services are discussed in Chapter 7 of this document.

Chapter 7

7 Pricing approach for FTTC based NGA services

7.1 Overview

- 7.1 In this chapter we assess the options and the preferred approach for setting the price(s) for FTTC based VUA (including EVDSL) in the WLA market and FTTC based Bitstream in the Regional WCA market.
- 7.2 In Chapter 5 of this document, ComReg assessed the various costing methodology options for FTTC based VUA and FTTC based Bitstream. ComReg proposed that in general the BU-LRAIC+ methodology should be applied and with Eircom's Indexed RAB (or top down costs) applied to the Reusable Assets.
- 7.3 In Chapter 6 of this document, ComReg set out the proposed modelling approach for determining the network costs associated with the provision of FTTC based VUA (including EVDSL) and FTTC based Bitstream.
- 7.4 This chapter combines ComReg's preliminary views on the appropriate costing methodologies (Chapter 5) and the modelling approach (Chapter 6) to determine the draft output price(s) for FTTC based VUA (including EVDSL) and FTTC based Bitstream.
- 7.5 The remainder of this chapter is discussed under the following headings:
1. Points to consider when setting wholesale prices;
 2. Pricing approach for FTTC (and EVDSL) based VUA;
 3. Link between cost oriented FTTC VUA and LLU; and
 4. Pricing approach for FTTC based Bitstream (in the Regional WCA Market).

7.2 Points to consider when setting wholesale prices

- 7.6 There are two main options when setting wholesale prices; a single price for the entire country or a geographically de-averaged price that varies depending on the costs and competitive conditions in different areas e.g., urban price and rural price.

- 7.7 Even in the case where a market has been defined as national, ComReg may consider regulatory remedies that reflect varying prospective competitive conditions and network deployment that prevail in different areas. This is especially relevant for the access network in Ireland, where there are material differences between densely populated areas and rural areas in terms of population density and distribution.
- 7.8 The high proportion of isolated dwellings in rural areas requires the deployment of access cable routes that are less dense (i.e., serve fewer end users) with average line lengths that are considerably longer. The consequent lower economies of scale in the access network in these areas results in an average line cost that is higher than the corresponding cost in more densely populated areas. The high cost of network deployment in rural areas also results in significantly less opportunities for infrastructure-based competition.
- 7.9 ComReg considers that the differences in average cost profiles and the varying prospective competitive conditions evident between more densely populated (urban) areas and rural areas may provide some justification for access prices to be tailored to reflect these factors.
- 7.10 ComReg considers that the decision by OAOs to invest in an area is dependent on their ability to exploit sufficient economies of scale and scope to generate a commercial return and so the existence or prospect of infrastructure-based competition would appear to be a key characteristic to consider when defining the relevant geographic areas.
- 7.11 The priority between short-term and long-term investments may vary depending on the specific conditions of each wholesale product and geographical area (competition level, technical and economic viability of using or installing competing facilities).
- 7.12 Where the average per-customer cost of constructing a network is high⁹⁵, neither infrastructure-based competition nor VUA / LLU-based competition is likely to develop as it takes too much time for a private investor to generate a return on its investment in the network knowing that prices at the retail level may be constrained by end users' willingness to pay. In this case, the local link to the end user represents a bottleneck; service-based competition may be the main priority. This is often the case in rural areas as is evident in the preliminary findings of the WLA / WCA Market Review with regards to Regional Area 2. As noted in Chapter 4 of this document, this area corresponds to those exchanges which are in the more sub-urban, rural and remote areas of Ireland where Eircom is unlikely to face any competing network operators.

⁹⁵ Which is the case in remote areas where there are few end users linked to an exchange.

- 7.13 In more densely populated areas and large exchanges that are more profitable, alternative operators are more likely to invest in the infrastructure. This is evident by the preliminary findings in the WLA / WCA Market Review where Eircom faces at least two alternative operators in each exchange area in the Urban WCA Market, capable of providing retail broadband services, absent regulation in the WCA Market. Consequently, it is important to maximise viable infrastructure investment in these areas.
- 7.14 Therefore, ComReg considers that the pricing approach may need to distinguish between areas where alternative investment in wired access network infrastructure by OAOs is likely and areas it is not.

7.3 Pricing approach for FTTC based VUA

7.3.1 Options for setting the FTTC based VUA price

- 7.15 For FTTC based VUA, the BU-LRAIC+ costs and Eircom's Indexed RAB for Reusable Assets, as described in Chapter 5 of this document, are consistent with the costs of an operator similar to Eircom.
- 7.16 In addition, as noted in Chapter 5, the costs for FTTC based VUA and EVDSL based VUA are aggregated in the NGA Cost Model, in order to derive a single cost / price. This is discussed in more detail below.
- 7.17 In order to derive the cost oriented monthly rental price for FTTC based VUA we must consider the appropriate footprint of exchanges on which to base the price over the proposed price control period.
- 7.18 ComReg has considered the following options with regard to determining the monthly rental price for FTTC based VUA in the WLA Market:
- **Option 1:** National price based on the cost of all Local and Remote VUA exchanges, both active and non-active FTTC working lines i.e., Local VUA sites (141) and Remote VUA sites (883) or 1,024 exchanges;
 - **Option 2:** National price based on those exchanges with active FTTC and EVDSL working lines i.e., currently 776 exchanges;
 - **Option 3:** National price based on those exchanges with active FTTC working lines only i.e., currently 401 exchanges; and
 - **Option 4:** National price based on the cost of FTTC based VUA in those exchanges consistent with the LLU footprint of 237 sites (determined as the 'Modified LEA' in the 2016 Access Pricing Decision).

Figure 19: Draft output rental prices for FTTC based VUA⁹⁶

Options	No of Exchanges	€ - FTTC based VUA (incl. EVDSL costs) 2017/18
Option 1: FTTC VUA price based on all Local and Remote VUA exchanges (active / non-active sites)	1024	19.67*
Option 2: FTTC VUA price based on exchanges with active FTTC and EVDSL lines	776	16.50*
Option 3: FTTC VUA price based on exchanges with active FTTC lines only	401	16.14*
Option 4: FTTC VUA price based on Modified LEA footprint (per D03/16)	237	16.13*

*Including fault repair and provisioning/migration costs

7.19 Figure 20 sets out the prices for FTTC based VUA for each of the four options above broken down by cost category. Please see our proposed approach regarding the appropriate cost categories relevant to FTTC based VUA in Chapter 6, subsection 6.7. The draft prices at Figure 19 and Figure 20 are based on the outputs of the model for 2017 / 2018 (with an assumed implementation date of 1 July).

⁹⁶ Including EVDSL based VUA.

Figure 20: Proposed prices for VUA by cost category

Description	Option 1	Option 2	Option 3	Option 4
	All VUA sites	Working FTTC & EVDSL lines	Working FTTC lines	LLU Footprint
Local loop cost	8.01	7.99	7.91	7.80
VUA Fault	0.33	0.33	0.31	0.30
DSLAM / OLT	5.26	2.44	2.48	2.64
Agg node	1.35	1.43	1.58	1.84
Migration	0.31	0.31	0.31	0.31
Design & Management	0.40	0.43	0.49	0.56
Common and Indirect cost	1.48	1.48	1.48	1.48
BB fault cost	0.44	0.44	0.44	0.44
Inter-agg nodes + exch to agg links VUA	2.09	1.64	1.15	0.77
VUA	11.66	8.51	8.23	8.33
Local loop + VUA	19.67	16.50	16.14	16.13

7.20 Separately, in Chapter 14 of this document we have set out the monthly charges associated with FTTC based VUA, for each year of the proposed price control period as well as the prices that could apply beyond the price control period i.e., 2020/21 and 2021/22, for transparency purposes and in the event that a subsequent review is not completed by then. Please refer to Figure 36 in Chapter 14 for the details.

7.21 Each of the options listed at paragraph 7.18 are discussed in turn below.

7.3.2 Option 1: National price based on the cost of FTTC in all Local and Remote VUA exchanges

7.22 Option 1 means establishing the national cost of each asset associated with FTTC based VUA based on all VUA sites i.e., Local VUA sites (141) and Remote VUA sites (883) or 1,024 exchanges, with both active FTTC lines and non-active lines. To obtain access to all the FTTC lines, an operator needs to unbundle 141 Local VUA sites nationally which will then give access to the other FTTC exchanges via Remote VUA. Based on the costing methodology proposed in Chapter 5 of this document this option calculates the national monthly rental price of FTTC based VUA based on a BU-LRAIC+ methodology generally and Eircom’s Indexed RAB for Reusable Assets e.g., ducts and poles. The price derived is based on the average cost of a line in all VUA sites (active and non-active) throughout the country.

7.23 ComReg considers that Option 1 is consistent with Paragraph 30 of the 2013 Recommendation, as set out at paragraph 5.31 of this document. The BU-LRAIC+ methodology, particularly for Non-reusable Assets, ensures that the price for FTTC based VUA promotes efficient infrastructure investment so as to

inform investors' decisions. For Reusable Assets it would be inefficient for operators to build new civil infrastructure such as duct and poles when it is possible to re-use the existing assets by buying access to them from Eircom. By using Eircom's Indexed RAB for Reusable Assets we should ensure that Eircom recovers its actual efficient investment in these assets rather than the higher costs that would be required to build such infrastructure today. The proposed approach for Reusable Assets is consistent with Paragraph 34 of the 2013 Recommendation, as set out in paragraph 5.84 of this document.

- 7.24 As this option is based on the average cost of a line in all active and non-active VUA exchanges, it assumes that all Local VUA and Remote VUA sites (totalling 1024) are likely to have FTTC services deployed at them. Therefore, the average cost per line is higher, compared with Option 2, Option 3 and Option 4. As take up of FTTC based VUA is unlikely in rural exchanges given the lack of economies of scale and scope in this area, ComReg considers that the objective of promoting efficient infrastructure investment is not as relevant in these exchanges. ComReg considers this option could raise the FTTC based VUA price to a non-competitive level in particular in those areas where FTTC based VUA may be viable i.e., in more densely populated (urban) areas.
- 7.25 In addition, investment in FTTC based VUA by private operators is not expected to be commercially viable in more rural areas given the high cost of lines. This is indicated by the fact that subsidies are needed for very high speed access networks to be deployed in remote areas. Therefore, in these areas the need to promote efficient infrastructure investment is less relevant. Indeed the higher prices that arise under Option 1 could deter OAOs from investing in areas where such investment is commercially viable. Furthermore, using national costs to inform the price would result in Eircom over recovering its costs as the price reflects the higher than average cost in the more remote areas.
- 7.26 ComReg considers that Option 1 is not consistent with the objectives of encouraging competition and incentivising viable investment by Eircom or other operators.
- 7.27 For Option 1, the NGA Cost Model has derived a preliminary rental price for FTTC based VUA of €19.67 (including faults and provisioning/migration costs) for 2017/18.

- 7.28 ComReg is of the preliminary view that a national FTTC based VUA price based on the BU-LRAIC+ costs generally and Eircom's Indexed RAB for Reusable Assets in all active and non-active VUA sites (1,024 exchanges) may not be appropriate. This may lead to over recovery of costs by Eircom as Eircom would be compensated for the cost of exchanges in more rural areas of the country which are unlikely to be FTTC enabled for the provision of VUA services, as they are not considered to be commercially viable. Furthermore, given that the deployment of FTTC based VUA is unlikely in the more rural exchanges, ComReg considers this option could raise the FTTC based VUA price to a non-competitive level in particular in those areas where it may be viable.

7.3.3 Option 2: National price based on the cost of FTTC based VUA in sites with active FTTC and EVDSL lines

- 7.29 Option 2 means establishing the cost for each asset associated with FTTC based VUA and EVDSL based VUA in those exchanges with active / working FTTC and EVDSL lines, as deployed by Eircom.
- 7.30 Based on the costing methodology proposed in Chapter 5 of this document this option calculates the national price of FTTC based VUA implementing a BU-LRAIC+ methodology generally and Eircom's Indexed RAB for Reusable Assets, in those exchanges where Eircom has rolled out its FTTC and EVDSL network. The aggregated FTTC based VUA and EVDSL based VUA price is derived based on the average cost of a line in active FTTC and EVDSL deployed exchanges i.e., currently 776 exchanges in the WLA Market.
- 7.31 ComReg considers that Option 2 is consistent with Paragraph 30 of the 2013 Recommendation, as set out at paragraph 5.31 of this document. In those areas where active FTTC and EVDSL is deployed the BU-LRAIC+ methodology ensures that where competition is developing and where copper is likely to be replaced by private investors that investors are encouraged to make efficient infrastructure investments. The FTTC network is continually expanding in this area, consequently the copper cables (E-side) between an exchange and the street cabinet are likely to be replaced by fibre cables. The objective of promoting efficient infrastructure investment is relevant to incentivise the required investment on the E-side.

- 7.32 In addition, it would be inefficient for operators to build new civil infrastructure such as duct and poles when it is possible to re-use the existing assets by buying access to them from Eircom. By using Eircom's Indexed RAB for the Reusable Assets Eircom should recover its actual efficient investment in these assets rather than the higher costs that would be required to build such infrastructure today. The proposed treatment of poles and ducts derived from the Revised CAM should send the correct investment signals to Eircom with regard to the replacement of ducts and poles in Eircom's existing network. The approach for Reusable Assets is consistent with Paragraph 34 of the 2013 Recommendation, as set out in paragraph 5.84 of this document.
- 7.33 This Option is based on the average cost of a line in those areas where an active FTTC and EVDSL service has been deployed by Eircom and it assumes that promotion of efficient infrastructure investment is only relevant in these regions. In this case the FTTC based VUA cost is based on the assumption that only sub loops less than 2.5kms from the cabinet are included in the calculation, as sub loops beyond that distance are not likely to provide a reasonable level of broadband speed. Please see Chapter 6 of this document, paragraphs 6.94 - 6.100.
- 7.34 When choosing the appropriate footprint for FTTC based VUA an important consideration is overall cost recovery by Eircom. On the one hand, if Eircom does not recover its costs, it is not incentivised to invest in FTTC (and EVDSL), while on the other hand if Eircom over-recovers its costs, the End-user price will be too high. In addition, alternative operators will not make their own efficient investments if the price is below costs. This option should ensure cost recovery by Eircom as the cost is linked to Eircom's deployment of FTTC and EVDSL.
- 7.35 Option 2 provides a lower FTTC based VUA price compared to Option 1 and in theory this should give a lower End-user price. Alternatively, the footprint in Option 3 and Option 4 has already been exceeded by Eircom's current FTTC and EVDSL deployment and therefore the objective of cost recovery would not be respected nor the objective of encouraging further investment and competition in the relevant exchange areas by Eircom and other operators.
- 7.36 In addition, we consider that FTTC requires significantly more investment to be recovered than EVDSL. However, as the VUA price is aggregated for FTTC and EVDSL technologies, calculating the cost only over those areas where either FTTC or EVDSL have been deployed appears more in line with the cost causality principle as a number of exchanges has EVDSL and no FTTC.
- 7.37 Therefore, ComReg is of the preliminary view that a national aggregated FTTC based VUA price (including EVDSL based VUA) based on the BU-LRAIC+ costs and with Eircom's Indexed RAB for Reusable Assets for the provision of

VUA in areas where active FTTC and EVDSL has been deployed by Eircom is an appropriate option to consider.

- 7.38 For Option 2, the NGA Cost Model has derived a preliminary monthly rental price for FTTC based VUA (including EVDSL) of €16.50 (including faults and provisioning costs) for 2017/18.
- 7.39 We propose that the number of sites with active / working FTTC and EVDSL lines at the time of the Decision should be fixed for the price control period. In essence, the FTTC based VUA price would not fluctuate with movements in the number of exchanges during the price control period in order to provide certainty and price stability to operators in terms of infrastructure investment over the next few years.
- 7.40 The proposed monthly FTTC based VUA rental charge is considered to be a cost oriented price point. However, in exceptional circumstances ComReg may consider allowing Eircom to set the FTTC based VUA price below the regulated price level provided it seeks ComReg's approval to proceed in advance and does not breach the price floor requirements described in Chapter 12 of this document. In addition, Eircom must comply with its regulatory obligations and other laws. Please see Chapter 12 of this document regarding the regulatory approval mechanism for exceptional price reductions for FTTC based VUA which are subject to a price floor.
- 7.41 Further to paragraph 7.40, given that the regulated price for both FTTC based VUA and FTTC based Bitstream are cost oriented and as VUA is a significant cost element in the cost stack for FTTC based Bitstream we propose that any reduction to the price for FTTC based VUA should also be reflected in the price for FTTC based Bitstream. It is important that there is always a sufficient space / margin between the two services so that the price for FTTC based VUA is always sufficiently below the price for FTTC based Bitstream. Therefore, a reduction to the FTTC based VUA price should be reflected in the price for FTTC based Bitstream price in order to protect our regulatory objectives. Please see Chapter 12 of this document.

7.3.4 Option 3: National price based on the cost of FTTC based VUA in sites with active FTTC lines only

- 7.42 This option is similar to Option 2 except for the footprint of exchanges used to calculate the costs. In Option 3 we propose to use those exchanges where Eircom has active FTTC lines only i.e., 401 exchanges, in order to derive the FTTC based VUA price.
- 7.43 Based on the costing methodology proposed in Chapter 5 of this document this option calculates the national price of FTTC based VUA implementing a BU-

LRAIC+ methodology generally and Eircom's Indexed RAB for Reusable Assets, in those exchanges where Eircom has rolled out its FTTC network. The single FTTC based VUA (and EVDSL based VUA) price is derived based on the average cost of a line in FTTC deployed exchanges i.e., currently 401 exchanges in the WLA Market.

- 7.44 Please see paragraphs 7.31 to 7.32 regarding consistency of our approach with the 2013 Recommendation.
- 7.45 However, given that the quality of service and prices associated with FTTC and EVDSL services tend to be similar we propose to average the costs of FTTC based VUA and EVDSL based VUA into a single FTTC based VUA price based on a footprint of exchanges consistent with those sites where Eircom has deployed both its active FTTC and EVDSL network (see also paragraph 7.36).
- 7.46 For Option 3, the NGA Cost Model has derived a preliminary monthly rental price for FTTC based VUA of €16.14 (including faults and provisioning/migration costs) for 2017/18.
- 7.47 ComReg is of the preliminary view that Option 3 is not appropriate given that we propose to average the costs of FTTC based VUA and EVDSL into a single price and therefore the footprint of exchanges should reflect both technologies.

7.3.5 Option 4: National price based on the cost of FTTC based VUA FTTC in the Modified LEA footprint per D03/16

- 7.48 Option 4 is similar to Option 2 and Option 3 except for the footprint of exchanges used to calculate the costs. Option 4 means establishing the cost for each asset associated with FTTC based VUA based on a specific footprint of exchanges known as the 'Modified LEA'⁹⁷, which was used to set the price for LLU in the 2016 Access Pricing Decision. Based on the costing methodology proposed in Chapter 5 of this document this option calculates the national price of FTTC based VUA implementing a BU-LRAIC+ methodology generally and Eircom's Indexed RAB for Reusable Assets based on the average cost of a line in the footprint corresponding to the Modified LEA.
- 7.49 ComReg considers that Option 4 is consistent with Paragraph 30 of the 2013 Recommendation, as set out at paragraph 5.31 of this document. In the 'Modified LEA' the BU-LRAIC+ methodology ensures that where competition is developing and where copper is likely to be replaced by private investors that efficient infrastructure investment is promoted to inform investors' decisions. In addition, it would be inefficient for operators to build new civil infrastructure such as duct and poles when it is possible to re-use the existing assets by buying

⁹⁷ Please see Annex 14 of ComReg Decision D03/16 for the footprint / list of exchanges (237 exchanges) used to set the LLU price.

access to them from Eircom. By using Eircom's Indexed RAB for the Re-usable Assets Eircom should recover its actual efficient investment in these assets rather than the higher costs that would be required to build such infrastructure today. The proposed treatment of poles and ducts should send the correct investment signals to Eircom with regard to the replacement of ducts and poles in Eircom's existing network. The proposed approach for Reusable Assets is consistent with Paragraph 34 of the 2013 Recommendation, as detailed in paragraph 5.84 of this document.

- 7.50 This Option is based on the average cost of a line in the 'Modified LEA' and assumes that viable alternative infrastructure investment is only relevant in those (237) exchanges. This option, similar to the approach for LLU pricing in the 2016 Access Pricing Decision, would mean that the footprint / exchanges used to set the price for FTTC based VUA would be fixed for the price control period.
- 7.51 However, Eircom's rollout out of FTTC and EVDSL has already expanded beyond the 'Modified LEA' footprint. Therefore, in order to allow Eircom to recover the cost of providing FTTC and EVDSL to its currently deployed active sites we consider that Option 2 is more proportionate and justified. In addition, as our objective is to promote investment, a broader and more expanded footprint seems more appropriate.
- 7.52 For Option 4, the NGA Cost Model has derived a preliminary rental price for FTTC based VUA of €16.13 (including faults and provisioning/migration costs) for 2017/18.
- 7.53 ComReg is of the preliminary view that setting the FTTC based VUA price based on the 'Modified LEA' footprint, as per the 2016 Access Pricing Decision, is not appropriate as it does not ensure cost recovery for Eircom nor does it encourage more extensive investment in FTTC based VUA over the price control period.

ComReg's Preliminary View:

- 7.54 For FTTC based VUA (including EVDSL based VUA), the single monthly rental charge should be derived based on the BU-LRAIC+ methodology and with Eircom's Indexed RAB for Reusable Assets in those exchanges where Eircom has deployed active FTTC and EVDSL lines (currently 776 exchanges).
- 7.55 The FTTC VUA and EVDSL footprint for the purposes of setting a single FTTC based VUA price (which includes EVDSL based VUA) should be fixed at the time of the Decision.

- 7.56 In Chapter 14 of this document we have set out the monthly charges associated with FTTC based VUA, for each year of the proposed price control period (2017/18-2019/20) as well as the prices that could apply beyond the price control period i.e., 2020/21 and 2021/22, for transparency purposes and in the event that a subsequent review is not completed by then. Please refer to Figure 36 in Chapter 14 for the details.
- 7.57 In exceptional circumstances Eircom may be allowed to charge a lower price for FTTC based VUA so long as it complies with the regulatory approval mechanism and the price floor specified in Chapter 12 of this document. Any reduction to the price for FTTC based VUA should also be reflected in the price for FTTC based Bitstream.

- Q. 9 Do you agree with ComReg's preliminary view that the single monthly rental charge for FTTC based VUA (including EVDSL based VUA) should be based on the BU-LRAIC+ methodology generally and Eircom's Indexed RAB for Reusable Assets in those exchanges where Eircom has deployed active FTTC and EVDSL lines? Please provide reasons for your response.
- Q. 10 Do you agree that in the exceptional case where Eircom reduces the price for FTTC based VUA that any such reduction should also be reflected in the price for FTTC based Bitstream subject to the price floors requirements in Chapter 12 of this document and ComReg's regulatory approval? Please provide reasons for your response.
- Q. 11 Do you agree with ComReg's preliminary view that at the time of the Decision the FTTC based VUA and EVDSL footprint should be locked-in for the purposes of setting the single FTTC based VUA (including EVDSL based VUA) monthly rental price for the entire price control period? Please provide reasons for your response.

7.4 Link between cost oriented FTTC VUA and LLU

- 7.58 While it is important to encourage efficient investment in FTTC based VUA we also consider that investment in LLU should continue to be incentivised in those areas where it is economically efficient to invest.

- 7.59 To date, there has been a link between VUA (fibre) and SLU (copper), pursuant to the 2013 NGA Decision. The link between copper and fibre has been established where the SLU cost oriented price is the key input to the cost stack for FTTC based VUA, given that it reflects the costs from the home to the cabinet. There is currently a margin squeeze test between the VUA service (currently in Market 5 /WBA Market) and the SLU service (currently in Market 4/ WPNIA Market). This test ensures that VUA is not priced so low that it would dis-incentivise investment by alternative infrastructure operators during the transition to NGA services. The 2013 NGA Decision also provided that if a reduction to the SLU price is required under this test so also would a reduction be required to the LLU price, as appropriate.
- 7.60 Given ComReg's proposal that FTTC and EVDSL based VUA should be used to inform a cost oriented VUA price we have given further consideration to the need for a margin squeeze between the cost oriented VUA price and the SLU and LLU prices. The current SLU rental price is already cost oriented⁹⁸ and is derived based on an analysis of costs in the Revised CAM. Similarly the FTTC based VUA service comprises an SLU element and the costs of this SLU element have also been derived in the Revised CAM. Moreover, even though the EVDSL based VUA service comprises a full LLU cost, this will also reflect the costs of SLU, as SLU is a component of the LLU cost. As a consequence the cost oriented prices for SLU and VUA reflect the efficient costs associated with SLU and therefore the margin squeeze test between SLU and VUA⁹⁹ is no longer necessary. Therefore, in the WLA / WCA Market Review ComReg proposed to withdraw the existing margin squeeze obligation between VUA and SLU.
- 7.61 However, in this Draft Decision we propose to maintain a link between the price for FTTC based VUA and LLU by virtue of the cost orientation obligation.
- 7.62 The costs on the D-Side i.e., between the cabinet and the end user, are the same for both products. However, for FTTC based VUA the cost on the E-Side (before the cabinet) differs in terms of technology. The FTTC based VUA cost is deployed by replacing E-Side copper with fibre while for EVDSL based VUA and LLU the E-Side copper cost is relevant. Please see Figure 21.

⁹⁸ Section 4.1 of Annex 1 of the 2016 Access Pricing Decision.

⁹⁹ Section 4.3(c) and Section 5.3(c) of Annex 1 of the 2016 Access Pricing Decision.

Figure 21: Cost categories for FTTC and EVDSL based VUA and LLU

VUA FTTC			LLU	
Wholesale specific costs	Service specific cost	Shared or at least partially shared cost	Wholesale specific costs	
Active assets (agg. node, DSLAM)			MDF	
ODF			E-Side copper cables and joints	
E-Side fibre cables and joints			Trenches/chambers/poles on E-Side	
Trenches/chambers/poles on E-Side	Shared cost		SLU	
SLU			SLU	

Source: TERA

- 7.63 Figure 21 shows that the sub loop is shared between all services and to a larger extent the cost of civil engineering (ducts, trenches and poles) on the E-side. The costs specific to FTTC based VUA include E-side fibre cables and joints and ODF costs while E-side copper cables and joints and MDF costs are relevant only to EVDSL based VUA and LLU.
- 7.64 Therefore, if the costs on D-Side increase, then the cost of SLU, LLU, EVDSL based VUA and FTTC based VUA will increase. This ensures that there is a consistent price differential between the various products which should provide efficient investment incentives for operators. This approach also ensures that regulation is technologically neutral i.e., for a given exchange, operators can choose the most appropriate technology, either copper- or fibre-based.
- 7.65 In addition, any change to the price for SLU would also influence the price of both LLU and the cost oriented price for FTTC based VUA (including EVDSL). However, the impact of a change in the costs of E-Side copper is less clear cut as such a change would impact the costs of LLU and EVDSL based VUA but not the costs of SLU or FTTC based VUA.
- 7.66 ComReg is of the preliminary view that it is appropriate to maintain a link between the price for FTTC based VUA (Including EVDSL) and LLU in order to provide the appropriate investment incentives to operators. Therefore, any changes (increases or reductions) to the underlying costs of those assets/components common to both services (e.g., SLU) should be applied consistently to the price of both services.

Q. 12 Do you agree with ComReg's preliminary views that it is appropriate to maintain a link between the price for FTTC based VUA (including EVDSL) and the price for LLU such that any changes to the underlying costs (e.g. SLU) should be applied consistently to the price of both services? Please provide reasons for your response.

7.5 Pricing approach for FTTC based Bitstream

- 7.67 As set out in Chapter 5 of this document, the proposed costs associated with FTTC based Bitstream are based on a combination of Eircom's BU-LRAIC+ costs and with Eircom's Indexed RAB for Reusable Assets. We also propose to adjust the Bitstream specific costs (WEILs and backhaul costs) to reflect the typical scale of a SEO with a 25% retail broadband market share, absent REO data.
- 7.68 In order to derive the cost oriented monthly rental price for FTTC based Bitstream we must consider the appropriate footprint of exchanges on which to calculate the FTTC based Bitstream specific costs that should inform the cost oriented price over the proposed price control period.
- 7.69 ComReg has considered the following two options with regard to determining the appropriate footprint for FTTC based Bitstream:
- **Option 1:** FTTC based Bitstream price based on all Local VUA sites i.e., 141 sites; and
 - **Option 2:** FTTC based Bitstream price based on Local VUA sites yet to be unbundled in the Regional WCA Market i.e., 48 sites or 397 exchanges which are connected to those 48 Aggregation Node sites in the Regional WCA Market.
- 7.70 This distinction is important since backhaul assets benefit from the scale effect.

Figure 22: Draft output rental prices for FTTC based Bitstream

Options	€ - FTTC based Bitstream 2017/18**	No of Exchanges
Option 1: FTTC Bitstream prices based on all Local VUA sites		
<i>Per port</i>	18.51*	141 Local VUA sites
<i>Per Mbps (usage)</i>	0.34	
Option 2: FTTC Bitstream prices based on Local VUA sites yet to be unbundled in Regional WCA Market		
<i>Per port</i>	18.99*	48 Local VUA sites or 397 exchanges
<i>Per Mbps (usage)</i>	0.34	

*Including fault repair and provisioning/migration costs

** These prices are based on an assumed mix of 90% regional handover and 10% national handover

7.71 In Chapter 14 of this document we have set out the monthly charges associated with FTTC based Bitstream based on national handover, regional handover and the prices based on an assumed mix of 90% regional handover and 10% national handover, for each year of the proposed price control period as well as the prices that could apply beyond the price control period i.e., 2020/21 and 2021/22, for transparency purposes and in the event that a subsequent review is not completed by then. Please refer to Figure 36 in Chapter 14 of this document for the details.

7.72 Each of the two options at paragraph 7.69 are discussed in turn below.

7.5.1 Option 1: FTTC based Bitstream price based on cost of Local VUA sites

7.73 Option 1 means establishing the cost for FTTC based Bitstream based on the cost of provision of FTTC at all Local VUA exchanges in the WCA Market. To obtain access to all the FTTC lines, an operator needs to unbundle 141 Local VUA sites nationally which will then give access to the other FTTC exchanges via Remote VUA (883 sites).

7.74 Based on the costing methodology proposed in Chapter 5 of this document this option calculates the monthly rental price of FTTC based Bitstream using a BU-LRAIC+ methodology and with the specific NGA Bitstream costs (e.g., backhaul) adjusted to the scale of a hypothetical SEO, to reflect an operator with less economies of scale, which we consider is an appropriate proxy for a REO. The price derived is based on the average cost of a line in the 141 Local VUA sites (and associated Remote VUA sites) in the WCA Market.

- 7.75 By basing the FTTC based Bitstream price on the current 141 Local VUA sites, the costs are lower due to the higher economies of scale compared to Option 2 (of 48 Local VUA sites) and therefore the price is lower. Consequently, this does not favour VUA deployment (as the proposed price for FTTC based Bitstream would be lower relative to the FTTC based VUA price and the OAO would have less margin to exploit if it decided to adopt VUA rather than Bitstream).
- 7.76 In line with Section 12 of the Communications Regulations Act 2002 (as amended) and Regulation 16 of the Framework Regulations, ComReg considers that the objective of encouraging infrastructure investment and competition by Eircom and other operators is relevant in the Regional WCA Market. However, a large amount of the Local VUA sites are already unbundled by other operators. Our objective is to provide the right investment signals in those exchanges in the Regional WCA Market where new investment is likely to occur, which is equivalent to those exchanges that have not been unbundled to date. Therefore, we consider that a more refined footprint (in Option 2) may be more appropriate.
- 7.77 For Option 1, the NGA Cost Model has derived a preliminary monthly rental price for FTTC based Bitstream of €18.51 (including faults and provisioning costs) and a usage price of €0.34 for 2017/18.
- 7.78 ComReg is of the preliminary view that Option 1 is not appropriate for the reasons set out at paragraphs 7.75 to 7.76.

7.5.2 Option 2: FTTC based Bitstream price based on Local VUA sites yet to be unbundled in Regional WCA Market

- 7.79 Option 2 means establishing the cost for FTTC based Bitstream based on those Local VUA sites yet to be unbundled. To obtain access to all the FTTC lines, an operator needs to unbundle 141 Local VUA sites nationally which will then give access to the other FTTC exchanges via Remote VUA. However, the 141 Local VUA sites includes 63 Local VUA sites in the Urban WCA Market (which we propose should be deregulated in the context of the WCA market as per the WLA / WCA Market Review) and therefore we consider that only 78 Local VUA sites in the Regional WCA Market are relevant. Of these 78 Local VUA sites we consider that only those Local VUA sites yet to be unbundled i.e., currently 48 Local VUA sites or 397 exchanges (which are the exchanges connected to those 48 Aggregation Node sites), in the Regional WCA Market should be considered.
- 7.80 Based on the costing methodology proposed in Chapter 5 of this document this option calculates the cost of FTTC based Bitstream using a BU-LRAIC+ methodology and with Eircom's Indexed RAB for Reusable Assets e.g., ducts and poles. We also propose to adjust the specific NGA Bitstream costs to the

scale of a hypothetical SEO, as an appropriate proxy for REO costs. The price derived is based on the average cost per line in those Local VUA sites yet to be unbundled.

- 7.81 We propose that the Local VUA sites in the Regional WCA Market, which are yet to be unbundled, should be used as the appropriate footprint for determining the FTTC based Bitstream price as this corresponds with the footprint where new investment is most likely to take place. As noted in paragraph 7.79, the current 48 Local VUA sites (or 397 exchanges) excludes any exchanges proposed to be deregulated as part of the Urban WCA market.
- 7.82 This approach ensure that there is a sufficient gap / margin between FTTC based Bitstream and FTTC based VUA so that an alternative operator is encouraged to invest in VUA in those sites or exchanges where VUA is currently not available. Therefore, this approach ensures that the appropriate investment signals are provided in the relevant areas i.e., in those exchanges which have not been unbundled to date but which are commercially viable for alternative operator investment.
- 7.83 For Option 2, the NGA Cost Model has derived a preliminary monthly rental price for FTTC based Bitstream of €18.99 (including faults and provisioning costs) and a usage charge of €0.34 for 2017/18. Please note that these price are based on an assumed mix of 90% regional handover and 10% national handover. The FTTC based Bitstream port and usage prices associated with national handover and regional handover for each year of the proposed price control period are set out in Chapter 14 of this document.
- 7.84 ComReg is of the preliminary view that the FTTC based Bitstream price should be based on those local sites / exchanges yet to be unbundled in the Regional WCA Market.
- 7.85 We propose that the footprint of exchanges yet to be unbundled in the Regional WCA Market, should be fixed for the price control period, at the time of the Decision. In essence, the FTTC based Bitstream price would not fluctuate with movements in the number of exchanges during the proposed price control period in order to provide certainty and price stability to operators in terms of infrastructure investment over the next few years.
- 7.86 As set out in paragraph 7.41, the monthly FTTC based Bitstream rental charge is considered to be a cost oriented price point. Given that the regulated price for both FTTC based VUA and FTTC based Bitstream are cost oriented and as VUA is a significant cost element in the cost stack for FTTC based Bitstream we propose that any exceptional reduction by Eircom to the price for FTTC based VUA should also be reflected in the price for FTTC based Bitstream subject to the price floors requirements set out in Chapter 12 of this document.

Please see Chapter 12 regarding the regulatory approval mechanism for exceptional price reductions for FTTC based VUA which are subject to a price floor.

- 7.87 As our objective is to encourage OAOs to invest in VUA, it is important that there is always a sufficient space / margin between the two services so that the price for FTTC based VUA is always sufficiently below the price for FTTC based Bitstream. We consider that in the exceptional case where Eircom is allowed to reduce the price for FTTC based Bitstream (so long as it complies with the price floor set out in Chapter 12 and it obtains ComReg's prior approval), any such exceptional price reduction to FTTC based Bitstream should also be reflected in the price for FTTC based VUA price in order to protect our regulatory objectives. This is also particularly relevant given that Eircom is likely to consider a price reduction to FTTC based Bitstream in order to be more competitive at the retail level and so the FTTC based Bitstream price reduction should be reflected in the price for FTTC based VUA. Please see Chapter 12 of this document for further details.

ComReg's Preliminary View:

- 7.88 For FTTC based Bitstream, the monthly rental charge should be derived based on the BU-LRAIC+ methodology and Eircom's Indexed RAB applied to Reusable Assets in those Local VUA sites yet to be unbundled (currently 48 sites or 397 exchanges connected to those 48 Aggregation Node / Local VUA sites) in the Regional WCA Market. The Bitstream specific costs (backhaul and WEILs) should be adjusted to the scale of a hypothetical SEO (of 25%), as an appropriate proxy for a REO.
- 7.89 The FTTC Bitstream footprint for the purposes of setting the FTTC based Bitstream price should be fixed at the date of the Decision to reflect those Local VUA sites yet to be unbundled in the Regional WCA Market.
- 7.90 In Chapter 14 of this document we have set out the monthly charges associated with FTTC based Bitstream based on regional handover, national handover and the price based on an assumed mix of 90% regional handover and 10% national handover, for each year of the proposed price control period as well as the prices that could apply beyond the price control period i.e., 2020/21 and 2021/22, for transparency purposes and in the event that a subsequent review is not completed by then. Please refer to Figure 36 in Chapter 14 of this document for the details.

7.91 As our objective is to encourage OAOs to invest in VUA, it is important that there is always a sufficient space / margin between the two services; FTTC based VUA and FTTC based Bitstream, so that the price for FTTC based VUA is always below the price for FTTC based Bitstream. Therefore, in exceptional circumstances Eircom may be allowed to reduce the price for FTTC based Bitstream subject to the regulatory approval mechanism and the proposed price floor in Chapter 12. Any reduction to the price for FTTC based Bitstream should also be reflected in the price for FTTC based VUA, subject to ComReg's prior approval and the price floors requirements set out in Chapter 12 of this document.

Q. 13 Do you agree with ComReg's preliminary view that the monthly rental charge for FTTC based Bitstream should be based on the BU-LRAIC+ methodology and Eircom's Indexed RAB applied to Reusable Assets based on those Local VUA sites yet to be unbundled in the Regional WCA Market and with an adjustment to Bitstream specific costs to reflect the scale of a hypothetical SEO with a 25% retail broadband market share? Please provide reasons for your response.

Q. 14 Do you agree with ComReg's preliminary view that the FTTC based Bitstream footprint should be locked-in at the date of the Decision for the purposes of setting the FTTC based Bitstream monthly rental price in the Regional WCA Market for the entire price control period? Please provide reasons for your response.

Q. 15 Do you agree that in exceptional cases only Eircom should be allowed to reduce the price for FTTC based Bitstream so long as any such reduction is reflected in the price for FTTC based VUA (in order to maintain a sufficient economic space between the two services) and subject to the price floor requirements in Chapter 12 of this document and ComReg's regulatory approval? Please provide reasons for your response.

Chapter 8

8 Cost modelling: NGN Core Model

8.1 Overview:

- 8.1 In this Draft Decision we have used the next generation network ('**NGN**') core network model (referred to throughout this document as the '**NGN Core Model**') to determine the costs associated with Eircom's core network.
- 8.2 The NGN Core Model is used to determine the BU-LRAIC+ costs for the provision of core network services. The core network supports a range of services including voice, leased lines, CGA broadband (and NGA broadband), IPTV / multi-casting.
- 8.3 The main outputs of the NGN Core Model in the context of this Draft Decision are Eircom's BU-LRAIC+ costs for current generation broadband services i.e., Bitstream and BMB services. In addition, the NGN Core Model also determines the costs of an OAO (a REO providing current generation Bitstream and BMB services), which can be used in order to set a Bitstream price floor.
- 8.4 In addition, as the NGN Core Model determines the costs for NGA and CGA services relevant to the core network, some of the outputs of the NGN Core Model have been used in the NGA Cost Model in Chapter 6 of this document. In particular, the cost of backhaul traffic for FTTC based Bitstream has been derived in the NGN Core Model and is used as an input in the NGA Cost Model at Chapter 6 of this document. Similarly, the inter-aggregation link costs and the link costs between aggregation node and exchange for VUA is also determined in the NGN Core Model and then used as an input in the NGA Cost Model.
- 8.5 In the remainder of this subsection we discuss how the NGN Core Model has been dimensioned and how the proposed costs of the core network have been determined.
- 8.6 The rest of this chapter is discussed under the following headings:
1. Background;
 2. Network dimensioning;
 3. Network demand;
 4. Network costs;
 5. Determination of cost outputs.

8.2 Background:

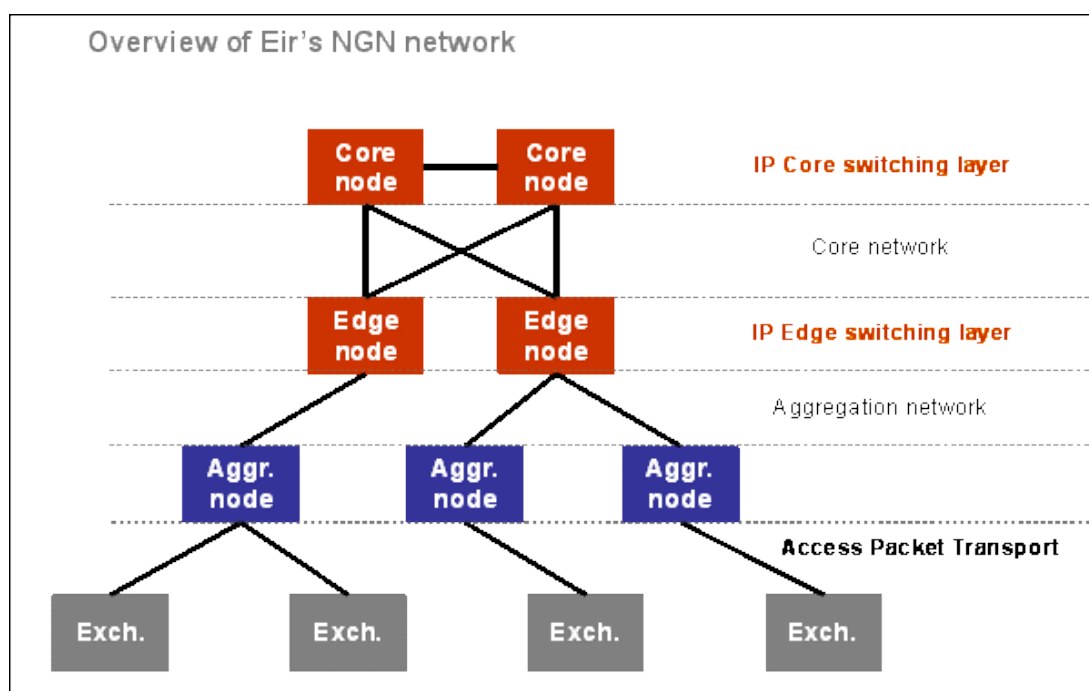
- 8.7 Up until now we have used the Bitstream cost model, as per the 2014 WBA Pricing Decision (ComReg Decision D11/14), to assess Eircom's compliance with its existing cost orientation obligation for current generation Bitstream and BMB services, nationally. The existing Bitstream cost model is based on Eircom's actual historic costs nationally (and adjusted for efficiencies plus a reasonable rate of return), which are forecasted forward for the three year price control period. The purpose of the existing Bitstream cost model is to ensure that Eircom recovers no more than its actual costs, adjusted for efficiencies plus a reasonable rate of return, for the provision of current generation Bitstream and BMB services, nationally. Please see Chapter 6 of the 2014 WBA Pricing Decision for further details on the existing Bitstream cost model.
- 8.8 In this Draft Decision we propose to use the NGN Core Model to determine the relevant BU-LRAIC+ costs associated with broadband services on the core network. The NGN Core Model includes the entire cost of the core network for the provision of such services as leased lines, voice and broadband services. To date, the NGN Core Model has primarily been used to inform cost oriented prices for Leased Line services. The NGN Core Model has been developed with the assistance of TERA Consultants.
- 8.9 In particular, we propose to use the NGN Core Model to determine Eircom's BU-LRAIC+ costs for the provision of current generation Bitstream and BMB services. In addition, the NGN Core Model has also derived indicative price floor for current generation Bitstream services, based on a hypothetical operator (REO), should we consider that a price floor is still warranted going forward, as discussed in Chapter 9, subsection 9.4.
- 8.10 For the NGN Core Model we requested information from Eircom on demand forecasts for voice, broadband and leased line services as well as product capacity profiles. We also requested data on the design technology of the network, capacity based thresholds for network components such as cables, routers, DSLAMs and data on the core network hierarchical structure and layers. In addition, Eircom provided data on the routing factors (which are discussed at paragraphs 8.30 to 8.42) for various traffic types carried on the network. Eircom also provided operating cost data for its core network and the unit prices for various equipment types. This data has been reflected as appropriate in the NGN Core Model. Where no information was available from Eircom, TERA has made assumptions in the NGN Core Model. These are discussed in more detail later in this chapter.

8.11 In the remainder of this subsection we discuss the proposed approach to dimensioning the network and how the proposed costs (both BU-LRAIC+ and REO) for the provision of current generation Bitstream and BMB services have been determined in the NGN Core Model.

8.3 Network dimensioning:

8.12 Figure 23 illustrates how Eircom’s NGN core network is dimensioned.

Figure 23: Dimensioning of core network



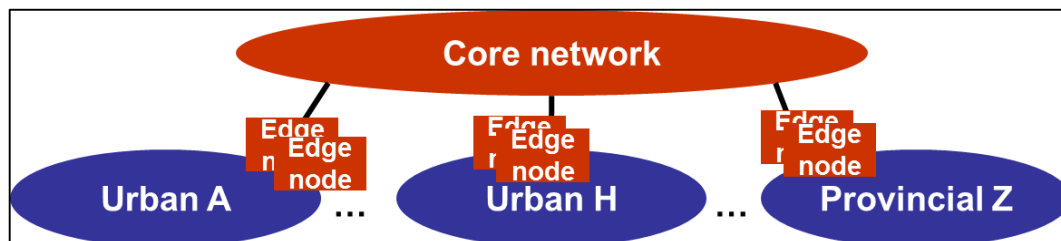
Source: TERA

8.13 Eircom deploys its NGN network in 20 aggregation regions, three of which are single aggregation nodes, each connected to a pair of IP edge nodes, for high capacity demands. In the remaining aggregation regions, several aggregation nodes are grouped together, constituting a region. Each aggregation region is managed by 2 IP edge nodes¹⁰⁰, each being connected to every aggregation node in the region.

¹⁰⁰ IP Edge routers are higher capacity routers which combine traffic demands from all Aggregation routers in each NGN network region. Each region has two such IP Edge routers for redundancy purposes. They filter traffic demands to determine if the originating traffic is destined for another Aggregation node within the same region, or to be directed to the Core Router to transit into another region as all IP Edge routers are connected to the 4 core routers at the top of the network hierarchy.

8.14 The regions are interconnected with the core network. The core network consists of 4 IP core node sites¹⁰¹ and transport connections linking the edge nodes and core nodes. This is illustrated below in Figure 24.

Figure 24: Linking edge nodes to core network



Source: TERA

8.15 We propose that the NGN Core Model should reflect Eircom’s core network, as detailed in Figures 23 and 24.

8.4 Network demand

8.16 The volume of network traffic associated with each service is a necessary input to a cost model that is used to inform cost-oriented prices. Consequently, it is important to gain an understanding of the aggregate historic and projected traffic of the different services that are supported on the core network. Service demand is calculated on an annual basis but, for network dimensioning purposes, the busy hour load for each service also has to be considered as busy hour traffic demand is a key parameter in dimensioning the level of network equipment the modelled operator needs to deploy.

8.4.1 End users / customers

8.17 End user / customer numbers are a key determinant of service demand and the demand forecast for the likely active subscribers on Eircom’s core network (wholesale and retail subscribers) is populated with data for the years 2007 up to 2022. The model uses actual data provided by Eircom for historical periods while the data for future years has been informed by forecast data provided by Eircom. This data is first compiled at a network site or exchange level and the exchange data is then aggregated to determine the level of demand in each of the 20 NGN network regions. The demand data includes leased line services, narrowband services (split between PSTN and ISDN) and broadband services including current generation and next generation broadband services. Next generation broadband is further split into FTTC / EVDSL and FTTH services.

¹⁰¹ Core routers are the largest capacity routers in the NGN hierarchy and provide a transit bridging connection between traffic flowing from one region to another, so providing connectivity between all the 20 regions in the network.

- 8.18 The NGN Core Model calculates the number of end users for each service i.e., voice (PSTN/ISDN), broadband (current generation and next generation) and leased lines, for the period 2007 to 2022. The NGN Core Model can then be run for a particular year to dimension and cost the network based on the level of service demand that is calculated for that year. So if the model is run for 2017 the network demand algorithms will reference the demand data calculated for 2017 and dimension and cost the network accordingly.
- 8.19 In the case of voice services, Eircom has provided forecasts at a national level for each year and the trend indicated in these forecasts is then applied to the historic data at a site level to derive a forecast of voice services at each site. Detailed broadband demands have already been calculated in the NGA Cost Model in Chapter 6, subsection 6.5 and these values are loaded into the NGN Core Model to provide a degree of consistency between both models.
- 8.20 Much of the annual data provided by Eircom is derived from mid-year (June) samples whereas the NGN Core Model bases its calculations on end-of-year data. Consequently, where necessary the data provided by Eircom is re-calibrated to provide an end of year figure based on the average of relevant mid-year figures. For network dimensioning purposes the end user numbers per service have then to be translated into capacity demands on the network.
- 8.21 Please also see our proposed approach to forecasting demand in the context of the NGA Cost Model at Chapter 6, subsection 6.5.

8.4.2 Capacity demands

- 8.22 To determine the network capacity demands for voice services the NGN Core Model first calculates the number of voice channels active at the busiest hour of the year in Erlang¹⁰² as a percentage of the total customer base. The number of busy hour channels is augmented with a cell blocking probability formula¹⁰³ before being converted to the number of equivalent links of STM-1¹⁰⁴ capacity. The network capacity demand due to voice services is then finalised for the various components in the network by adding an allowance for an overcapacity factor (×% for the APT, ×% for the aggregation network and ×% for the core network).

¹⁰² An Erlang is a measurement of traffic traditionally used in telecommunication networks.

¹⁰³ Blocking probability provides an estimate of the possibility that a call could be lost due to a lack of capacity during busy periods. For example, a blocking probability of 0.01 indicates that, on average, 1% of calls will be lost. This value is often referenced as the Erlang loss formula.

¹⁰⁴ A 2 Mb E1 can carry 30 voice channels while a 155Mb STM-I can carry 63 E1.

- 8.23 It is also necessary to split the overall voice capacity demand between the various call types (local, national, primary termination, etc.) as each call type can use the network components in different ways. To do this the number of channels is allocated to the type of voice traffic proportionally to the number of minutes generated by each traffic in the year under review.
- 8.24 The broadband end user demands are translated into network capacity demands by first assuming an average Broadband Busy Hour kbps per line. This data was provided by Eircom for the years up to 2013 and was estimated by TERA for the subsequent years based on the projected number of CGA and NGA end users, the percentage of end users using each type of broadband service (Bitstream Internet Protocol ('IP'), BMB, FTTC, FTTH, etc.) and the average projected busy hour demand for each broadband service.
- 8.25 In relation to data services, Eircom provided ComReg with an exhaustive list of the leased lines and Ethernet links operated on its network. This data included the two extremity exchange sites, the commercial speed and the contention rate for each link. This enables the required bandwidth capacity at the peak hour to be calculated for each leased line (legacy, Ethernet and wholesale) by dividing the commercial bandwidth by the contention rate. For example, a legacy leased line with a commercial speed of 2,048 kbps and a contention rate of 5:1 results in a required bandwidth capacity of $2,048/5 = 410$ kbps.
- 8.26 For modelling purposes the required leased line capacity demands are further analysed in terms of three traffic topologies:
- Inter-Aggregation node: where the two extremities of the leased line are in exchanges served from the same aggregation node;
 - Regional: where the two extremities of the leased line are in exchanges served from different aggregation nodes but both aggregation nodes are located in the same region;
 - Inter-regional: the two extremities of the leased line are served from two aggregation nodes located in different regions.
- 8.27 In order to categorise the traffic between the three traffic topologies detailed above, the model uses a list of the exchange sites based on information provided by Eircom with:
- The site code of the aggregation node to which it is connected;
 - The region of the site;
 - If the site is connected to an ATP.
- 8.28 The results of this analysis are summarised into a table showing the leased line capacity requirement (at peak hour) for each of the 20 regions in the Eircom's core network.

8.29 IPTV peak traffic demands are also included in the model based on information provided by Eircom on the number of HD and SD Channels and the average bitrate per channel type.

8.4.3 Routing factors

8.30 Another issue to consider when using service volume information to dimension a network is the extent to which the different network components are used by the different services. To this end, routing factors (also called service usage factors) capture the relative consumption of resources of each network component by each unit of service demand.

8.31 A factor of two is used when a component is used twice for a given service; for instance, an IP Edge Router is used twice for an inter-regional leased line as the IP Edge Router is used for each end of the leased line. Similarly, a factor of one indicates that a component is used once in a service; for instance a regional leased line uses an IP Edge Router site only, since each one end of the leased line is carried over the same regional IP Edge Router.

8.32 Routing factors are commonly expressed in the form of a matrix, with numerical factors against each component-service combination that reflects the intensity of the component usage by each service in the provision of a unit of output of that service.

8.33 An illustrative example of the routing factors for broadband traffic is presented in Figure 25:

Figure 25: Routing factors for broadband traffic

Wholesale broadband RF	ISAM Core	Exch to Agg	IP Aggregation Router	IP Agg. To IP Edge	IP Edge Router	IP Edge to IP Core	IP Core Router	IP Core To IP Core	BNG
Regional handover NGA	1	0.5	1	1	1	0	0	0	0
National NGA	1	0.5	2	2	2	2	1	0	0

- 8.34 As indicated in Figure 25, there are two forms of handover or interconnection of wholesale broadband traffic; regional and national handover. Regional handover occurs where broadband traffic originating in a particular region is handed over to an OAO at an interconnection point that is located within the same NGN region¹⁰⁵. Therefore, the interconnected traffic avoids the use of network components which are in place to facilitate traffic transiting between regions e.g., IP Core Router. As a consequence the routing factors for regional handover would have zero values applied to the equivalent components in the routing factor table in Figure 25. This results in the OAO incurring lower charges for its use of Eircom's network but to avail of this option OAOs need to invest in interconnection facilities in each of the NGN network regions where this option is required.
- 8.35 With national handover all wholesale broadband traffic originating in any of the regions, is carried over the network to a single national point of interconnection. This has the consequence of requiring such traffic to leave a region and transit through the network components which are at the top of the hierarchy, facilitating inter-region connectivity. Therefore, a greater number of network components in the routing factor in Figure 25 do have higher values in the case of national handover. This change in the routing factor values then attributes more costs to this form of handover, as the use of the Edge node to Core node links and the use of the Core router nodes will now contribute to the overall network cost resulting in higher network charges to the OAO.
- 8.36 Routing factor volumes are used to calculate the traffic load on each of the network components due to all the services carried on the network. They are calculated by matrix multiplication of route factors and the related service volumes and are used in the NGN Core Model in a number of ways.
- 8.37 As many network components are sensitive (either directly or indirectly) to changes in traffic volumes, applying routing factors to the busy hour demands is a key input into determining the quantity of network components required to support the given level of demand when dimensioning the network.
- 8.38 Once all network components have been dimensioned and the total cost of each element is established, the total service volumes can also be multiplied by routing factors to generate route-factored volumes. These serve as the basis for apportioning the costs of the network elements to the services they support in proportion to the relative usage by each service.
- 8.39 Therefore, the service capacity demands in combination with the routing factors determines the scale of the capital infrastructure required on the core network.

¹⁰⁵ There are a total of 20 NGN regions in the network.

8.40 Accordingly, at each network site, the NGN Core Model retrieves the number of network nodes for each of the following equipment types:

- Aggregation nodes;
- Edge nodes;
- Core nodes;
- Exchange configuration for the site, including the capacity demand requirements of the aforementioned nodes.

8.41 In addition to equipment inventory, configuration aspects of the network must also be considered and the impact of routing factors. In a limited number of cases some remote sites do not have their DSLAMs or OLT ports connected directly to the aggregation node site through an APT node and fibre cable, but instead are connected via another remote exchange site through fibre cable connectivity, before onward connection to an Aggregation node port at another exchange. This form of connection is referred to as '**Rehoming**'.

8.42 As a result of Rehoming, the routing factors of the APT and the Exchange to Aggregation links routing factors need to be modified (but not for DSLAMs, OLT, or aggregation nodes), to reflect the different forms of connectivity before reaching an Aggregation node exchange and the service port on that node. Eircom has provided the list of rehomed sites. The NGN Core Model retrieves the number of nodes i.e., DSLAMs and OLTs and then it calculates the number of nodes after rehoming. This impacts the traffic that goes through the APT, and the Exchange to Aggregation links, as in some cases the traffic demands on the APT equipment is not only the immediate demands within the network site but also similar traffic demands which are connected by extension through fibre cable from a Rehomed exchange location.

8.4.4 Throughput / bandwidth / traffic

8.43 For each region of the network the NGN Core Model calculates the traffic for each of the following services:

- Voice;
- Broadband;
- IPTV; and
- Leased Lines.

- 8.44 Broadband throughput demand has become the most significant contributor to traffic volumes on the core NGN network and the way in which operators sell broadband at a retail level, (e.g. CGA or NGA and limited or unlimited downloading) can have a significant impact on the average throughput experienced by operators and the subsequent average cost of backhaul.
- 8.45 The proposed throughput/ bandwidth / traffic (referred to as “traffic” in the rest of this chapter) required to run the network is discussed in this section.

Broadband traffic assumptions:

- 8.46 The NGN Core Model calculates the broadband traffic based on the number of broadband end users (discussed above at 8.4.1) multiplied by the average peak traffic level in k/b per end user in a given period, usually a month, to align with the billing cycle. Various peak demand traffic profiles are employed in the NGN Core Model for the various broadband technologies, ranging from CGA broadband, to FTTC and FTTH, for each year of the model. These values are based on actual and forecast data for each technology option, in each year of the model. As noted earlier, product demand volumes by broadband type have already been determined by exchange site and so by region. The product of peak traffic demands, volumes and routing factors provides the inputs to determine the loading on the network components from summary broadband traffic. Therefore, the NGN Core Model calculates the broadband traffic values by region and by network component (IP aggregation node, edge node) and then it accumulates the total value for all regions. Costs attributable to each of these parts of the network, when divided by the total traffic carried on each, determines the cost of broadband traffic or throughput on a per 100k/b unit basis. Finally, the addition of routing factors permits the derivation of summary costs per 100k/b unit of traffic for all broadband products.

8.5 Network costs:

- 8.47 The main network costs associated with the provision of broadband services are set out in Figure 26.

Figure 26: Network components attributable to Broadband costs

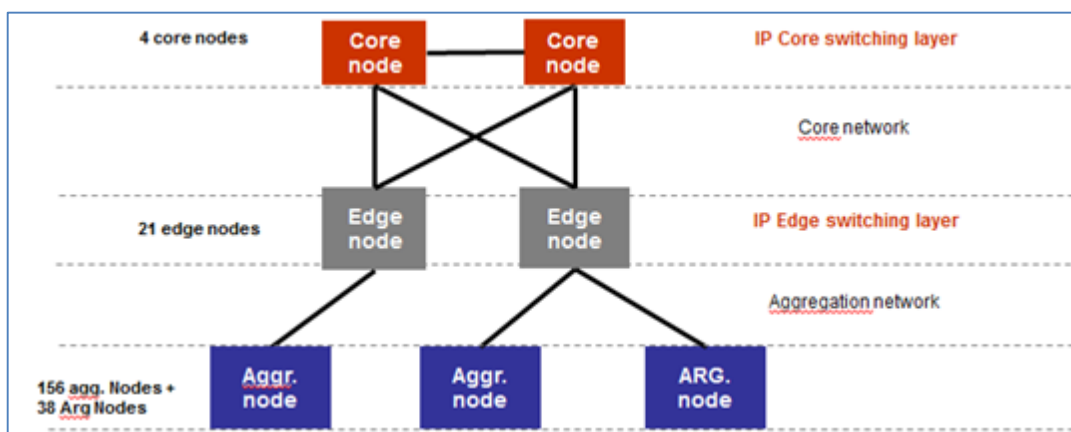
Broadband costs in NGN Core Model
Node / router costs
DSLAM costs
Trench and duct costs
Backhaul /transmission costs
Dense wavelength division multiplexing (' DWDM ') / Code or coarse wavelength division multiplexing (' CWDM ') system costs / Access Packet Transport costs, and re-configurable optical add drop multiplexer (' ROADM ') costs
Operating costs
Other:
Material costs
Buildings and power cost
Network management systems

8.48 In the rest of this subsection we set out our proposed approach to determine the costs in Figure 26.

8.5.1 Node dimensioning costs:

8.49 As indicated in Figure 27, the cost of network nodes are a significant cost element in the NGN Core Model.

Figure 27: NGN core network structure



Source: TERA

8.50 The NGN Core Model calculates the cost of all of the nodes in the network, including core nodes, edge nodes and aggregation nodes. Each node calculation is made separately and the costs are identified between fixed and variable elements.

8.51 The NGN Core Model calculates the cost per region for each of the following:

- Aggregation / ARG nodes¹⁰⁶;
- Edge nodes;
- Core nodes; and
- Reconfigurable optical add-drop multiplexer ('ROADM') i.e., the equipment at the nodes.

Aggregation / ARG nodes:

8.52 The NGN Core Model calculates the number of links and ports required at each Aggregation / ARG node. The objective is to assess the average number of gigabit Ethernet ports for each Aggregation / ARG node in the region. This is an important step as it determines the number of Input / Output multiplexer ('IOMs'), Media Dependent Adaptors ('MDAs') and small form pluggable devices ('SFPs') to deploy. These are in effect the variable cost components associated with Aggregation / ARG routers. The traffic demands on the Aggregation routers at the service ports facing primary service demands or indeed the demands on the ports which face links to the next layer of the network, the IP Edge routers, are determined based on demand data and

¹⁰⁶ These are low capacity Aggregation nodes, deployed at exchange locations with lower levels of demand. Each ARG router has less port numbers than standard Aggregation nodes.

routing factor analysis. This in turn determines the capacity and the number of ports required at each Aggregation / ARG site.

- 8.53 By determining the number of ports for each Aggregation / ARG node we are able to determine the capital costs associated with Aggregation / ARG node deployment at each location where they are placed. To incorporate all leased lines traffic demands for each Aggregation / ARG node, 1 port per fiber termination is required. Demands from broadband and voice services which is handled by DSLAMs require 2 ports per DSLAM at the Aggregation / ARG node level. Finally, onward connection of traffic demands for all services from the Aggregation / ARG node layer of the network up the hierarchy to the IP Edge or regional routers will require 2 ports per Aggregation node as it is linked to two Edge nodes.
- 8.54 The optical line termination ('**OLT**'), is a device which serves as the service provider endpoint of a passive optical network for FTTH GPON solutions used to service such broadband end users. The dimensioning rule in the NGN Core Model is that at the Aggregation node, 2 ports are reserved for each 1 OLT. The chassis of the Aggregation node in the NGN Core Model is generally an ESS-12, which is a multiple port switch for switching traffic between ports.
- 8.55 Besides, 2 ports are reserved to link any additional aggregation node for each site if the full capacity of the first chassis is reached.
- 8.56 Finally, the cost for the aggregation node equipment is calculated per node and per region using the number of ports and the unit prices.

Edge nodes:

- 8.57 The NGN Core Model calculates the number of links and ports required at the edge node. This is based on traffic demands and routing factors.
- 8.58 Similar to the aggregation nodes, the objective is to derive the average number of gigabit Ethernet ports for each edge node in the region. This determines the number of IOMs, MDAs and SFPs. The selected chassis in the case of edge nodes is the SR12, which again is a multiple port device but in this case is a router rather than a switch, used to route traffic up and down the network hierarchy.
- 8.59 The cost for the edge node equipment is calculated per node and per region using the number of ports and the unit prices.

Core nodes:

- 8.60 Similar to the approach for determining the ports and links for the aggregation nodes and edge nodes, the NGN Core Model calculates the number of links

and ports for the core node. Once again, and consistent with the objectives in the case of aggregation nodes and edge nodes, the aim is to assess the average number of gigabit Ethernet ports for each core node in the region. This determines the number of XCM¹⁰⁷ and SFPs to deploy.

8.61 In the case of failure, one core node may be dimensioned to handle traffic of other defect nodes. Therefore, in the NGN Core Model there are design rules in the case of node failure as follows:

- 2:1 node may carry its traffic and 1 additional failing node;
- 3:1 node may carry its traffic and 2 additional failing nodes;
- 4:1 node may carry its traffic and 3 additional failing nodes.

8.62 The selected chassis in the case of the core node is the Extensible Routing System ('XRS') which is a high capacity router solution which can be scaled to manage 32 terabytes of data and interface with ROADM and other high speed optical multiplex solutions. This component is placed at the apex of the network and manages transit traffic between all 20 NGN network regions.

8.63 The cost for the core node equipment is calculated per node and per region using the number of ports and the unit prices.

ROADM for nodes:

8.64 The ROADM costs include fixed and variable costs. The rule in the NGN Core Model is to deploy ROADM for each and every edge node, core node and aggregation node that generates over 100Gbps of traffic.

8.65 The NGN Core Model calculates the variable cost for each ROADM depending on traffic. Note ROADM technology is only deployed between the edge and core routers where traffic demands are high.

8.66 For each site (with aggregation node, edge node and core nodes) the NGN Core Model counts how many other sites it is connected to in order to derive port counts:

- Edge node: each has 2 connections to a core router and there are two edge routers per region, which establishes ROADM node sites, and their capacity needs in each region;

¹⁰⁷ XMA Control Module is a unit installed within the Core Router chassis which supports multiple node ports for links to other Core and PE routers. Normally two such units are installed in a Core router to facilitate network connectivity.

- Core node: In addition to the ROADM port connections required to connect Core nodes and edge node in each region, there is also some port needed to connect Core router sites together, to form a secure traffic matrix with redundancy assurance. Thus, based on port and traffic needs, ROADM technology is deployed at the Core router sites, sufficient to address the calculated requirements.
- 8.67 The NGN Core Model then calculates the variable cost for each ROADM, depending on the traffic at the node.
- 8.68 There are three options in terms of variable costs, depending on traffic at the node:
- 100 Gbps capacity on a 100 Gbps system (traffic between 10 Gbps and 100 Gbps);
 - 10 Gbps capacity on a 100 Gbps system (traffic <10 Gbps);
 - 100 Gbps capacity on a 200 Gbps system (traffic between 100 - 200 Gbps).
- 8.69 For core nodes the NGN Core Model takes into account links with other core nodes and with the edge nodes of the region.
- 8.70 For each node the NGN Core Model calculates the cost for Cable Management systems ('**CMS**'), power and accommodation needs for the router type including Core router nodes and all other equipment types. CMS equipment is used to connect fibre optic and power cable to/from the equipment types. In addition, the power demands for the core router is known from supplier specifications, and the model is informed by a cost of a kilowatt of power. Similar costs are calculated for all equipment types. Accommodation costs are calculated based on the physical footprint required by each equipment type and used in conjunction with Eircom wholesale tariffs for co-location facilities, which permits the model to calculate summary accommodation costs for all equipment types. The result of these processes is that ancillary costs for CMS, power and accommodation of all equipment types per region can be determined.

8.5.2 DSLAM costs:

- 8.71 For DSLAMs, the NGN Core Model determine those sites where there is or is not a DSLAM / OLT equipment. For each site with DSLAM equipment the NGN Core Model calculates the number of cards for the DSLAMs at exchanges and cabinets and the OLT for FTTH. For each site the number of cards required for DSLAM equipment is then calculated based on the number of end users as follows:

$$Nb\ of\ equip = \frac{INTEGER(Nb\ of\ customers)}{Max\ capacity} + 1$$

8.72 The annualised cost for DSLAMs at every site is calculated based on the unit cost for DSLAM equipment and taking into account the annualisation factor for the DSLAM equipment.

8.5.3 Trench costs:

8.73 In the NGN Core Model there are three scenarios considered for calculating the trench length:

1. Trench and lengths for fibre deployed before 2014;
2. Trench and lengths for fibre deployed in 2016; and
3. Trench and lengths for fibre deployed after 2016.

8.74 For scenario (1), and in the absence of data from Eircom on length of the APT network (or APT node to Aggregation node distances), the NGN Core Model assumes an average length per site of \approx kms per site. This allows for a reconciliation with the total length of core trenches at the national level (\approx kms) previously modelled. In addition, for scenario (1) the NGN Core Model assumes \approx % of trench sharing. The value of \approx % is calibrated to result in a similar length of trench in the core network as Eircom has in reality (\approx kms). This sharing component relates to the fact that inter exchange routes between Aggregation node and IP Edge node sites shares part of the trench with the Aggregation to APT node.

8.75 For scenario (2), the NGN Core Model assumes \approx additional sites will be deployed in 2016 with an average trench length (without fibre) of \approx kms. Therefore, the NGN Core Model also assumes the summary length of new fibre route additions for 2016 is \approx kms.

8.76 For scenario (3), the NGN Core Model assumes that \approx sites will be deployed with fibre cable after 2016, with an average route trench length (without fibre) of \approx kms and therefore in conjunction with the results from scenario 2 above, results in a total new fibre route of \approx kms post 2016.

8.77 In order to determine the overall trench costs, the NGN Core Model takes account of the results of the trench lengths, described at paragraphs 8.73-8.76, with additional dimensional aspects of trench required to finalise overall costs. These include the trench size (or the number of pipes in the trench) and the type of surface of the trench which needs to be excavated and reinstated.

8.78 The NGN Core Model can choose any of the three trench sizes used by Eircom in its core network as follows:

- 2 ways;
- 6 ways;
- 12 ways.

8.79 The assumptions in the NGN Core Model for the surface mix for trench are set out in Figure 28:

Figure 28: Surface type assumptions in NGN Core Model: ✕

8.80 The trench costs associated with the surface mix are consistent with the costs in the Revised CAM. Price trends are applied to the trench costs.

8.81 For each region, the NGN Core Model calculates the total trench costs and then the share relevant to the access network is removed.

8.5.4 Transmission / backhaul costs:

Backhaul for Bitstream services:

8.82 Backhaul costs for Bitstream are calculated based on the share of variable costs attributable to the traversal of traffic across the Aggregation, Edge and Core Routers. In particular, in relation to the variable cost associated with router ports. This is calculated based on the product of peak traffic demand and routing factors, divided by port capacity thresholds and adjusted for reasonable fill level. The resulting inventory of router ports can then be determined and in conjunction with supplier costs, operating and other cost overheads it is possible to determine the relevant costs in each of the 20 NGN regions. The costs are then divided by the calculated traffic level, to derive a fee or cost for each 1 M/b of traversal of each of the router types.

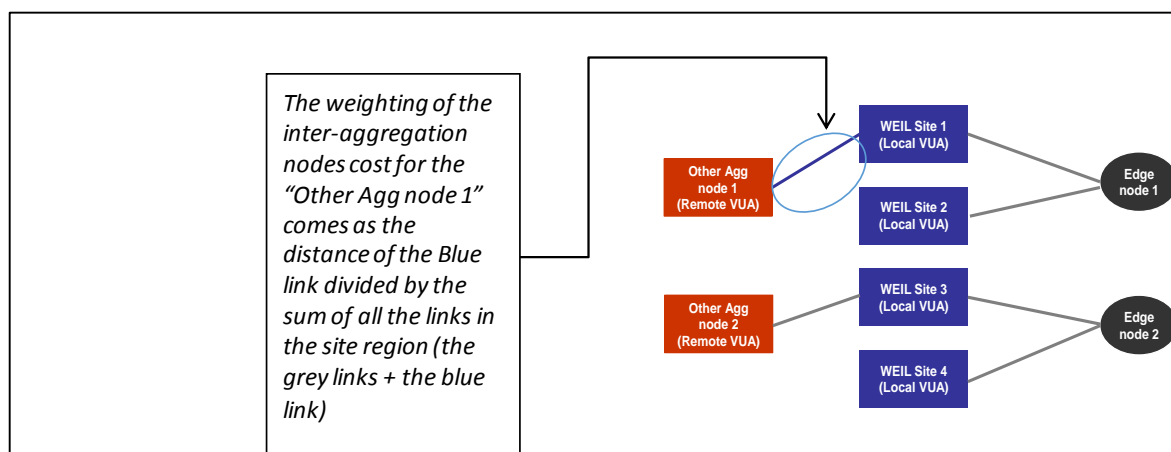
Inter-aggregation node links:

8.83 The backhaul for VUA is calculated in the NGN Core Model and referred to as inter-aggregation node link costs which are in turn used as an input cost in the NGA Cost Model, as discussed in Chapter 6 at paragraph 6.110 of this document. The costs of a REO are used to estimate the inter-aggregation node links.

8.84 As set out at paragraphs 6.16 to 6.20 of Chapter 6 of this document, Eircom offers two variants of VUA; Local VUA and Remote VUA.

- 8.85 The NGN Core Model calculates the cost of the link from the remote exchange or APT/Node Reach exchange to aggregation node exchange. The aggregation node sites are generally the Local VUA sites and the links between the remote exchanges and the aggregation or local VUA sites are relevant in the calculation of the cost of Remote VUA.
- 8.86 In the NGN Core Model the summary cost of the exchange to aggregation node link is calculated by an average weighting of the cost of the link per end user. If the MDF is an aggregation node, the exchange is co-located in the same site so there is a lower cost recognised. For the other Remote VUA sites, the cost is derived as the average cost for broadband (for the exchange to aggregation node site link) in the region, when divided by the number of broadband end users in the site.
- 8.87 In the NGN Core Model, in some cases, Remote VUA costs need to include an additional cost for the inter-aggregation node links. This arises for the sites with an aggregation node but where Local VUA is not made available. This occurs at a small number of aggregation nodes where a Local VUA service or interconnection is not provided. In such cases the costs of the link from the aggregation node, immediately connected to the OLT or DSLAM to the aggregation node where Local VUA interconnection is available, needs to be included in the costs for VUA in the region. Initially, the costs of all links from aggregation sites to other aggregation sites are included in the summary costs of Aggregation to determine the cost split in each region based on calculating two values, first identifying the aggregation node to edge node link routes (inclusive of Aggregation to Aggregation links) and calculating the total length of all these link routes in the region. Secondly, we must identify and calculate the summary route or link lengths for Aggregation to Aggregation links in the region. The ratio of the later over the former, determines the share of the summary Aggregation to Edge link costs which are attributable to the Aggregation to Aggregation links, which are in turn attributable to Remote VUA costs. This is illustrated in Figure 29.

Figure 29: Approach for determining inter-aggregation node link costs



Source: TERA

8.5.5 DWDM / CWDM / APT costs:

- 8.88 Dense wavelength division multiplexing ('**DWDM**') is a technology that puts data from different sources together on an optical fiber, with each signal carried at the same time on its own separate light wavelength. Using DWDM technology means that a network operator can increase the capacity on a given route without having to deploy additional fibre cables on that route. In the NGN Core Model the value for DWDM equipment is based on the product of the volumes of DWDM systems required by the supplier costs for the equivalent CWDM system as outlined in the next paragraph.
- 8.89 Code / Coarse wavelength division multiplexing ('**CWDM**') is a method of combining multiple signals on laser beams at various wavelengths for transmission along fibre optic cables, such that the number of channels is fewer than in DWDM but more than in standard wavelength division multiplexing ('**WDM**'). In the NGN Core Model the unit cost for CWDM is based on the costs of an 8 channel passive WDM unit. Each system requires two of the 8 channel devices, one to service each end of the WDM route linking two network locations. This in turn permits the calculation of an approximate cost for each optical path or wavelength per region for the CWDM systems.
- 8.90 Access Packet Transport ('**APT**') is used to connect the remote sites to the aggregation nodes. Eircom has provided information on the cost and engineering rules associated with the deployment of APT.
- 8.91 The NGN Core Model parameters allows for exclusion of WDM technology costs as the cost model has deployed sufficient fibre optic cable capacity of up to 48 fibres so removing the need for optical multiplexing.

8.5.6 Operating costs:

- 8.92 The NGN Core Model bases the operating costs on the operating costs of the core network contained in Eircom's accounts, but with a number of efficiency adjustments. The operating costs include pay costs, non-pay costs and indirect capital costs. The NGN Core Model allocates the operating costs from Eircom's accounts e.g., repair and maintenance, data platforms, transmission link, transmission length, etc. to each part of the NGN network by category e.g., Exchange to Aggregation links, Aggregation node, Edge node, Core node and all the relevant links connecting the locations of the routers.
- 8.93 In total the operating costs from Eircom's accounts relating to core network connectivity or transmission infrastructure, after efficiency adjustments are summarised into seven cost classifications. These classifications include repair and maintenance, data platforms, transmission link, transmission length, etc.
- 8.94 The NGN Core Model then allocates the total operating cost for each network component to each of the NGN network regions using allocation keys based on the capital cost for equipment and trench length.
- 8.95 The allocation process is based on the application of a network allocation table which determines whether each of the seven operating cost classifications are relevant for allocation to each of the nine NGN network components which are:
- Exchange (Remote) to Aggregation Node (Equipment);
 - Exchange (Remote) to Aggregation Trench;
 - IP Aggregation Router;
 - IP Aggregation to IP Edge Router (Equipment);
 - IP Aggregation to IP Edge Router (Trench);
 - IP Edge Router;
 - Core Network Equipment;
 - Core Network Trench; and
 - IP Core Router.

- 8.96 When the allocation rules permit the attribution of operating costs to a given infrastructure type, the next consideration is what share of each operating cost classification should be attributed to that infrastructure type in each of the 20 NGN network regions. This stage of the allocation process is determined by the relative capital values associated with the relevant infrastructure in each region. The scale of the capital values for infrastructure in each region would have already been established, based on unit costs, network design rules and summary demands from the range of services supported. An example would be where the operating cost classification relates to the active electronics equipment, in which case the operating costs will be attributed to each of the regions based on the relative capital values for electronic equipment such as IP routers and WDM equipment in each of the 20 NGN network regions.
- 8.97 Finally, the NGN Core Model allocates the operating costs between the three services supported, including broadband, voice and leased lines. This is done in each NGN network region in line with the attribution of capital related costs of network infrastructure. In each NGN region, infrastructure costs are separated into fixed and variable cost classifications, e.g. trench costs would be regarded as a fixed cost classification as related costs do not readily increase with capacity demands, whereas port equipment costs on routers, are more immediately impacted by the growth in capacity demands and thus are regarded as variable in nature. As noted in paragraphs 8.22 to 8.29, the variable cost related to infrastructure costs (including appropriate portion of operating costs) are allocated to services such as broadband, voice and leased lines based on relative capacity. Similarly, fixed cost related infrastructure costs (again including appropriate portion of operating costs) are apportioned to services based on four possible cost allocation rules which are outlined later in this chapter at paragraphs 8.109 to 8.123.

8.5.7 Other costs:

- 8.98 Other costs include material costs, management system costs and building and power costs.
- 8.99 For material costs, the NGN Core Model includes the cost for cable management systems ('**CMS**'), power supply, optical distribution frames ('**ODFs**') and related fibre tie cables. CMS and power costs have been detailed earlier in this document. ODF costs relate to the termination of fibre cables connected to equipment at each site and also fibre cables connected to the access network, to provide a connection panel solution to link equipment optical ports with external fibre cables serving connectivity into the Access network for FTTC or FTTH broadband, high speed or leased line access and also intra-core network connectivity (e.g., Aggregation to Edge node links).

8.100 The NGN Core Model also includes the costs for one-off management systems as well as the annualised costs of management of the network.

8.101 The one-off management system costs is calculated for each unit of traffic based on the following formula in the NGN Core Model:

$$\textit{Unit management CAPEX} = \frac{\textit{One - off}}{\textit{Cumulated regional traffic}}$$

8.102 The annualised management costs for each unit of traffic is based on the following formula in the NGN Core Model:

$$\textit{Unit management cost} = \frac{\textit{Total annualised}}{\textit{Cumulated regional traffic}}$$

8.103 For building costs, the NGN Core Model takes the building rental cost per exchange (per square metre) from the Eircom ARO price list. The following costs are then added to derive a total cost per square metre:

- Base rental for building;
- Uplift for facilities, air conditioning and stand-by generator;
- Actual use of additional facilities of air conditioning and false flooring;
- Cost for power, assuming a maximum \times demand per year at the site with air conditioning provided.

8.104 The NGN Core Model then calculates the total number of square metres in order to derive the cost of buildings.

8.105 There are two options in the NGN Core Model for calculating building costs as follows:

- Option 1: Bottom up version (as explained in paragraphs 8.102-8.104);
- Option 2: Use the Eircom accounts to calculate the building costs.

8.106 Currently, the NGN Core Model applies the bottom up approach, combining access reference offer ('**ARO**') tariffs in combination with the inventory of equipment and accommodation space needed based on known dimensions of each equipment type. In addition, the power requirements at each location can be determined based on inventory and the equipment's power demands provided from supplier data. This approach also recognises the accommodation space used by legacy synchronous digital hierarchy ('**SDH**') infrastructure at some remote exchange sites to service transmission capacity connectivity to aggregation node sites. Normally APT nodes service this requirement, and in recognition of this, additional accommodation capacity and consequent costs are included, at some network sites where APT nodes do not exist, but SDH equipment provides the same function.

8.107 In the NGN Core Model we make some assumptions regarding the space for racks in the buildings. For one piece of equipment we assume in the NGN Core Model that the footprint required is 3m² per standard 0.48m² rack. However, additional space is needed as follows:

- To access the rack: we assume 2x surface of the rack. This ensures that technicians can access the front and rear of each equipment rack to facilitate repair, incremental equipment installations and port modifications. Additionally, adequate space is required around electronic equipment to facilitate the flow of air, to ensure adequate climatic conditions required to prevent excessive temperatures.
- For spares: we assume the spare surface is equal to 0.5 x (rack surface plus access surface).
- For utilities: we assume that utilities (e.g., power) surface is equal to 0.5 x (rack surface plus spare surface plus access surface).

8.108 Therefore, in the NGN Core Model we assume a rack requires a space of 3m².

Q. 16 Do you agree with the proposed principles, inputs and assumptions in the NGN Core Model for determining the costs associated with the provision of broadband services? Please provide reasons for your response.

8.5.8 Allocation of fixed network costs:

8.109 One of the main challenges in the core network cost calculation is to allocate the shared network costs to each service.

8.110 Where costs are fixed, the traffic based cost allocation can raise issues, particularly when the traffic for one service is increasing at a faster rate compared to the other services. This is especially relevant in the case of broadband.

8.111 In the proceeding paragraphs we identify options to allocate traffic costs between the different telecoms services on the core network as well as the advantages and disadvantages of each. We also set out our preliminary views on the most appropriate option for sharing traffic costs across the core network going forward.

8.112 In terms of background, in order to provide Eircom's core network services, several types of costs are incurred as follows:

- **Network costs - fixed element:** These include all network costs that are not traffic-sensitive. This includes most of the costs of passive infrastructure e.g., trenches, cables, buildings as well as fixed cost elements associated with active equipment e.g., DSLAMs, common components of the aggregation router, etc.
- **Network costs - variable element:** These include all of the variable cost elements of the active equipment e.g., ports for each of the routers, including Aggregation routers, edge routers and core routers.
- **Non-network costs:** These include corporate overhead costs e.g., chief executive salary.

8.113 In the NGN Core Model, all specific costs that can be directly linked to services do not need a detailed allocation method (as direct allocation occurs). However, for joint network costs and non-network costs, allocation mechanisms are needed as follows:

- **Network cost: fixed element:** For fixed network cost, the traditional way to allocate costs (based on traffic) is less relevant as traffic is not the cost driver. There is potentially 4 allocation methods as detailed further below in paragraphs 8.115 to 8.118.
- **Network cost: variable element:** As the variable network costs are driven by traffic, the cost allocation method is to link it to traffic per service (traditional way to allocate costs).
- **Non-network costs:** The best practice to allocate non-network costs is on the basis of Equi-Proportional Mark up ('EPMU').

8.114 In order to the allocate fixed network costs among services, we have considered the following options:

- 8.115 **Option 1: Capacity based allocation approach:** For each asset, the cost is allocated to the services based on the peak hour traffic of each service making use of the asset.
- 8.116 **Option 2: Equi-repartition (1/3 1/3 1/3):** For each asset, the cost is equally distributed between the services on the network making use of the asset.
- 8.117 **Option 3: Based on revenue per user:** This option is based on a snapshot of the revenues of the voice / broadband / IPTV/ leased lines services taken at the beginning of the control period (based on the latest available Regulatory Accounts). For each asset, the fixed cost element is allocated to the services making use of the asset depending on the % of total revenue. The cost allocation driver under this option does alter when the product volumes change over the years of the control period. Revenues for voice / broadband / IPTV/ leased lines are forecasted for subsequent years to assess the allocation % for each year based on the assumption that the revenue per user remains unchanged.
- 8.118 **Option 4: Based on total revenue:** This option is based on a snapshot of the revenues of the voice / broadband / IPTV/ leased lines services taken at the beginning of the control period (based on the latest available Regulatory Accounts). For each asset, the fixed cost element is allocated to the services making use of the asset depending on the % of total revenue. The cost allocation driver under this option does not alter when the product volumes change over the years in the control period i.e. the % allocated to the 4 services (voice / broadband / IPTV/ leased lines) remains unchanged for all years.
- 8.119 For Option 1 (capacity based approach), if the traffic per user for a service increases significantly, the costs allocated to that service increase significantly. In addition, if the traffic per user for a service doubles, the end user may not be willing to pay twice the price. The capacity based allocation is the traditional approach in the telecoms sector and it is the approach that has been adopted in the NGN Core Model to date. However, this approach fails to provide stable pricing signals over time and it may not be in line with end users' willingness to pay. As an example, broadband and leased lines services have increasing levels of traffic per end user but end users are generally not willing to pay a high price for this better service.
- 8.120 For Option 2 (Equi-repartition), if the traffic per user for a service increases significantly, the cost allocated to the service remains stable. However, this can be problematic if the end users base evolves. If demand for any given one of the three services (voice, broadband and IPTV) grows and capacity and volumes related to that service classification increases, then costs attributable to each individual product associated with that service may fall to very low levels, due to economies of scale. This would arise as the model would not

attribute incremental fixed costs driven by the emerging product demands in an appropriate manner, to link the cause and attribution of costs. In tandem with this outcome other services where demand volumes are static would absorb increasing fixed costs and so in some cases result in price increases, which might further disincentivise demand for a nascent service. Therefore, the share of fixed costs allocated to the growing service will not increase appropriately if the traffic per user increases but other services would bear a disproportionate share of the incremental fixed costs. The equi-repartition (option 2) provides more stable outputs and the allocation of costs to a given service is independent of the traffic evolution of other services. However, it may not be in line with the end users' willingness to pay if services driving more traffic are not those driving more revenues.

- 8.121 For Option 3 (total revenue per user), initially service revenues at a given point in time are used to apportion fixed costs to services. Subsequently, the allocation of fixed costs to each service are updated by forecast data, contained in the cost model. This is for each year in the control period. The forecast data includes product volumes and traffic levels, which in turn provide forecast revenues per service type. If the forecast traffic per user for a service increases significantly, or overall forecast end user volumes increase, the fixed costs allocated across each of the services will change. It will evolve with the end user base (and or with the traffic). Therefore, the share of costs allocated to the service will increase if the traffic per user increases and the allocation of costs should be in line with the end users' willingness to pay. This option takes the same revenues (as per Option 4 below) and divides the output by the volumes to get ARPU/ end user type. As the volumes and mix changes between the three services over the years the drivers of fixed costs are updated to reflect the volume and product mix. This option provides more price stability and the allocation is based on what the end user has accepted to pay in the past.

- 8.122 Option 4 (total revenues approach), results in the apportionment of costs based on revenues per service at a point in time. So if the traffic per user for a given service increases significantly, the cost allocated to the service remains stable under this approach, as the cost drivers do not reflect more recent relativities of service revenues. However, this can be problematic if the end user base evolves, in which case actual revenues do increase and would normally result in higher costs being absorbed by that service. If volumes remain static or decline the share of costs allocated to the service will not increase or fall even if the traffic per user increases and the initial allocation would be in line with the end user's willingness to pay. This option takes revenues, split between voice, broadband, IPTV and Leased Lines (when included in the analysis), at a single point in time and is used to derive relative ratios as drivers for the fixed cost allocations. But this remains static and does not consider the changing mix of volumes over subsequent years, which are contained in the forecast data for product volumes and consequent traffic levels by service.
- 8.123 ComReg is of the preliminary view that Option 3 i.e., revenue per user should be considered as an appropriate means to allocate traffic costs on the core network for the reasons set out at paragraph 8.121.

Q. 17 Do you agree with ComReg's preliminary view that traffic costs on the core network should be allocated based on revenue per user (option 3 above)? Please provide reasons for your response.

8.6 Determination of cost per line

8.6.1 Cost model outputs:

- 8.124 The calculation of network capital costs and the related operating costs in the NGN Core Model for each of the NGN network regions and for each of the network components in each region, has been outlined in this chapter. In addition the scale of traffic demands in each region and for each network component had been derived, based on service demand levels. This is possible using end user service volumes in conjunction with average peak traffic demands for each service. Therefore, by combining traffic demands on all infrastructure components in a region, it is possible to calculate the costs for the use of each of the network sub-components by region, for the transfer of 1M/b of network traffic. Consequently, it is possible to derive the costs of traffic and connectivity for each service in each region based on the calculated cost for the use of each network component. This data in conjunction with routing factors, informing the model of the use of network components by service, in conjunction with the average scale of traffic demands by end user per service, allows us to calculate the summary network costs per end user for a given service. This is also available in the model outputs for each of the NGN regions.

- 8.125 The model also calculates the costs associated with each service by exchange network location and determines weighted average costs for traffic demands in each of the three geographic areas identified in the WLA / WCA Market Review i.e., Urban WCA Market, Regional Area 1 and Regional Area 2. Using this data the model can determine the costs associated with the Inter-aggregation nodes link costs and the exchange to aggregation link associated with VUA. These relate to the costs for service of connecting NGA broadband traffic for VUA from remote exchange sites to a point of interconnection or those incurred where the service demands arise more locally within the immediate exchange area, where the aggregation node is located. Using similar processes it is possible to derive the costs for CGA backhaul. Finally, the model also provides an output for the cost of DSLAM port use, based on a weighted average across the DSLAMs in selected exchange locations.
- 8.126 The output from the NGN Core Model uses different routing factors for regional and national handover. Regional and national handover is discussed at paragraphs 8.34 and 8.35. Therefore, there are two variants of CGA costs output from the model; national and regional handover alternatives.
- 8.127 In summary, the price per month and per end user is calculated for the various regions/zones based on the unit cost for national/regional handover routing factors. Please see paragraphs 9.16 to 9.17 regarding the current proposed approach for Regional handover prices in the NGN Core Model.
- 8.128 The NGN Core Model calculates the following key outputs:
1. Eircom's BU-LRAIC+ costs for current generation Bitstream and BMB services;
 2. The BU-LRAIC+ costs of an OAO (REO adjusted for smaller scale than Eircom and providing service at a limited number of exchange locations) for current generation Bitstream;
 3. The inter-aggregation node link costs and the costs of exchange to aggregation node links for VUA, which are then used as an input to the NGA Cost Model (as discussed in Chapter 6 of this document);
 4. Cost of Bitstream backhaul, which is then used as an input to the NGA Cost Model (as discussed in Chapter 6 of this document).
- 8.129 The costs of Eircom and the OAO are calculated for both national handover and regional handover.

8.130 The pricing options (in terms of footprint / zones) considered by ComReg in order to set the appropriate BU-LRAIC+ prices for current generation Bitstream and BMB services and consideration of a Bitstream price floor are discussed in Chapter 9 of this document.

Chapter 9

9 Pricing approach for Current Generation Bitstream and BMB services

9.1 Introduction

- 9.1 Firstly, in this chapter we assess the preferred approach for setting the BU-LRAIC+ prices for Eircom's current generation Bitstream and BMB services in the Regional WCA Market.
- 9.2 In Chapter 5 of this document, we assessed the various costing methodology options for determining the costs associated with current generation Bitstream and BMB services. As set out in Chapter 5 ComReg is of the preliminary view that the BU-LRAIC+ methodology should be applied.
- 9.3 In Chapter 8 of this document, we set out the proposed modelling approach for determining the BU-LRAIC+ for wholesale broadband costs based on the NGN Core Model.
- 9.4 This chapter combines ComReg's preliminary views on the appropriate costing methodologies (Chapter 5 of this document) and the cost modelling approach (Chapter 8 of this document) to determine the draft BU-LRAIC+ prices for Eircom's current generation Bitstream and BMB services in the Regional WCA Market.
- 9.5 Secondly, this chapter gives due consideration as to whether a CGA price floor based on the costs of a reasonably efficient operator ('**REO**') is necessary going forward, in light of the downward trend in the demand for CGA services as end-users continue to migrate from CGA to NGA services.

9.2 Background

- 9.6 Up until now the Bitstream cost model, as per the 2014 WBA Pricing Decision (ComReg Decision D11/14), has been used to assess Eircom's compliance with its existing cost orientation obligation for current generation Bitstream and BMB services, nationally. The existing Bitstream cost model is based on Eircom's actual historic costs nationally (and adjusted for efficiencies plus a reasonable rate of return), which are forecasted forward for the three year price control period. The purpose of the existing Bitstream cost model is to ensure that Eircom recovers no more than its actual costs, adjusted for efficiencies plus

a reasonable rate of return, for the provision of current generation Bitstream and BMB services, nationally. In this Draft Decision we now propose to use the NGN Core Model to assess Eircom's BU-LRAIC+ costs for the provision of current generation Bitstream services in the Regional WCA Market.

- 9.7 In addition, the existing wholesale pricing approach for CGA broadband is calculated based on the application of a per port charge (levied on each end-user) and a per MB throughput charge (derived using a logarithmic cost curve). This dual approach was designed to permit overall cost recovery while reflecting the fact that the relevant broadband services make use of a mixture of network components, some of which have relatively fixed costs for a range of traffic demands and other network components where the costs vary more directly in response to changes in the level of traffic or capacity which must be serviced. Therefore, the logarithmic cost curve used to determine the broadband throughput charges ensures that the charges levied on customers as their average usage increases more readily reflects the economies of scale that are realised when non-traffic sensitive cost components can cater for significant increases in overall network capacity or traffic demands.
- 9.8 The proposed NGN Core Model discussed in Chapter 8 of this document, has been modified to more readily distinguish between the costs for network cost components which are fixed in terms of changes in overall traffic demands and those which are variable. Furthermore, it is proposed that only the variable element will be recovered on the basis of a per MB throughput charge with the remaining costs recovered on the basis of a per port charge. This should result in a better alignment of cost causation and cost recovery principles as throughput charges can more easily target the recovery of those network costs that vary as average usage changes while per port charges can recover the remaining non-traffic related costs.
- 9.9 In addition, the fact that a greater proportion of the NGN costs can be recovered on the basis of a per port charge reduces the scale of cost to be recovered from throughput charges, thereby helping to mitigate the need for frequent price increase as average usage per user increases. While the model itself does not use a log curve to allocate costs (but rather uses a linear cost pattern), the revised allocation should also facilitate maintaining the current practice of applying a logarithmic curve to set throughput charges which has helped provide greater transparency to industry with regard to the future direction of broadband charges. ComReg welcomes any views stakeholders may have in this regard.
- 9.10 Separately, the existing Bitstream price floors have previously been derived from a Bitstream floors model based on the 2012 WBA Price Floors Decision. In this Draft Decision the NGN Core Model has assessed the Bitstream price

floors that could apply to Eircom going forward, should it be deemed necessary to protect alternative operators' investment in LLU / Line Share.

- 9.11 The existing charging structure for current generation Bitstream and BMB, including the structure used for the existing price floors, is based on the following:
1. Cost per port i.e., monthly per port cost per user based on non-traffic sensitive costs associated with running the network; and
 2. Cost per Mbps:
 - (i) Monthly backhaul costs per user based on a fixed portion of cost per Mbps for the level of bandwidth usage per user.
 - (ii) Monthly backhaul cost per Mbps based on a variable cost raised at the 95th percentile of the 5 minute readings in a calendar month.
- 9.12 As noted in paragraph 9.8, in the NGN Core Model we have made some changes to the way costs have been split between the "Per port" component and the "Per Mbps" component.
- 9.13 We propose to include all traffic sensitive costs in the "Per Mbps" charge and all non-traffic sensitive costs in the "Per port" charge.
- 9.14 The main differences between the existing approach and the proposed approach in NGN Core Model is set out in Figure 30.

Figure 30: Comparison of existing approach and proposed approach for recovery of costs in per port and per Mbps charges for CGA services

		Per port / Per Mbps categorisation	
		Current modelling	New modelling
Per Port	Current modelling	Line share Repair DSLAM BRAS	Line share Repair DSLAM Agg node – fixed part Edge node – fixed part Core node – fixed part Trenches/Cables
	New modelling	Agg node Wholesale transmission (WSEA/WEIL) <i>NB: A sensitivity to throughput analysis then identify a fixed part / a variable part of this component</i>	Agg node – variable part Edge node – variable part Core node – variable part

Source: TERA

9.15 The NGN Core Model estimates BU-LRAIC+ costs for current generation Bitstream and BMB services and in addition, the costs of a REO in order to estimate the Bitstream price floor. The main differences between the two outputs include the following:

- *Difference in footprint:* In terms of assessing Eircom’s BU-LRAIC+ costs in the NGN Core Model we assume that Eircom is present at all exchanges in the Regional WCA Market i.e.1116 exchanges. In the case of estimating the price floor for current generation Bitstream we assume in the NGN Core Model that the REO is either present in all 141 Local VUA sites or only present at sites that are already unbundled for LLU i.e., 79 sites.
- *Services provided over the core network:* In the NGN Core Model we assume the provision of Leased Line traffic by Eircom in deriving the estimated BU-LRAIC+ costs for current generation Bitstream and BMB services. In the case of the REO scenario we also assume the provision of Leased Line traffic by the OAO in estimating the Bitstream price floors in the NGN Core Model.

- *Market share:* In the NGN Core Model we assume a market share of 25% of the fixed retail broadband market in order to estimate a possible Bitstream price floor of a REO. We assume Eircom has a market share of 35% (of the fixed retail broadband market) in order to determine the BU-LRAIC+ costs for current generation Bitstream and BMB services.
- *Use of the network:* The NGN Core Model assumes that Eircom uses all of the core network whereas the REO (used to estimate the price floor) only uses from the Aggregation node to Core node part of the network, as the APT or remote exchange to aggregation node link costs are excluded, given that the REO broadband service is expected to be provided only from Local VUA sites.

9.16 In addition, the NGN Core Model provides the costs of delivering current generation Bitstream services across three regions i.e., Urban WCA Market, Regional Area 1 and Regional Area 2. The model outputs provides prices for two levels of interconnection or handover between Eircom's network and the OAO purchasing such wholesale inputs. These two forms of interconnection are known as National and Regional Handover, as already discussed at paragraphs 8.34 and 8.35. Historically, only national handover for wholesale broadband services occurred, but more recently regional handover prices were introduced in recognition of the ability of OAOs to interconnect more deeply in Eircom's network. Regional handover avoids the need to use some of Eircom's network infrastructure, and so results in lower costs for the current generation Bitstream products.

9.17 Currently, the NGN Core Model provides Regional and National Handover prices for current generation Bitstream services in all three regions (Urban WCA Market, Regional Area 1 and Regional Area 2). The cost savings from the use of Regional Handover for any traffic originating in the region is based on an OAO interconnecting at any Aggregation node within a network region. This approach differs from the tariff structure that is currently adopted by Eircom in its current wholesale bitstream access reference offer ('**WBARO**') price list. The current structure in Eircom's WBARO allows OAOs to realise varying degrees of discount based on the number of regions within which they are interconnected, rather than focus on applying the full discount for current generation Bitstream services within the region, which is the approach adopted in the NGN Core Model. ComReg considers that this approach is a more focused application of cost savings occurring within the region realised through this form of interconnection and it should not be materially at variance with the principles currently applied by Eircom to their existing Regional Handover pricing structure. However, ComReg welcomes the views of industry in this regard.

9.18 The rest of this chapter is discussed under the following headings:

1. Eircom's BU-LRAIC+ prices for Bitstream and BMB services; and
2. Consideration of need for price floor for current generation Bitstream services going forward.

9.3 Eircom's BU-LRAIC+ prices for Bitstream and BMB services

9.19 As set out in Chapter 8 of this document, the NGN Core Model calculates the costs allocated to broadband for each site according to the various regions/zones (Urban WCA Market, Regional Area 1 and Regional Area 2).

9.20 The total DSLAM costs at the exchange and the DSLAM cost allocated to broadband services are assessed for each exchange site.

9.21 All costs associated with the aggregation nodes, the edge nodes and the core nodes are then assessed and these are added to the DSLAM costs to determine the cost per site allocated to broadband services.

9.22 The NGN Core Model uses different routing factors for regional and national handover. Regional and national handover is discussed in Chapter 8, paragraphs 8.34 and 8.35 and also at paragraphs 9.16-9.17 of this document.

9.23 The cost per month and per line is calculated for the various regions/zones based on the unit cost for national/regional handover routing factors.

9.24 ComReg is of the preliminary view that there are two options for determining Eircom's BU-LRAIC+ costs for current generation Bitstream and BMB services in the Regional WCA Market as follows:

- **Option 1:** Average prices based on the cost of providing Bitstream and BMB services across the Regional WCA Market.
- **Option 2:** Geographic de-averaged prices based on the average costs of providing Bitstream and BMB services in Regional Area 1 and separately in Regional Area 2.

9.3.1 Option 1: Bitstream and BMB prices based on averaged costs across the Regional WCA Market

- 9.25 Option 1 means calculating the cost for current generation Bitstream based on a BU-LRAIC+ methodology. This option determines the average cost of providing Bitstream and BMB across the Regional WCA Market, i.e., across all exchanges (1,116 sites¹⁰⁸) in the Regional WCA Market, but excluding the exchanges in the Urban WCA Market which are proposed to be deregulated.
- 9.26 ComReg considers that Option 1 is consistent with Paragraph 30 of the 2013 Recommendation, as set out at paragraph 5.31 of this document. The BU-LRAIC+ methodology ensures that efficient infrastructure investment is encouraged so as to inform investors' decisions.
- 9.27 Option 1 minimises the risk of a digital divide by setting the same price across Regional Area 1 and Regional Area 2. There is no material difference between the average BU-LRAIC+ costs for current generation services in Regional Area 1 and the average BU-LRAIC+ costs in Regional Area 2. Therefore, an averaged BU-LRAIC+ cost across the Regional WCA Market seems proportionate and justified.
- 9.28 Option 1 allow Eircom some flexibility to cross subsidise from Regional Area 1 to Regional Area 2 while ensuring overall cost recovery (plus a reasonable rate of return) across the Regional WCA Market.
- 9.29 The BU-LRAIC+ approach should also provide the appropriate investment signals in Regional Area 1 where alternative infrastructure investment is likely.
- 9.30 Going forward, Regional Area 2 is the likely footprint for the NBP deployment.
- 9.31 Our proposed costing approach, as discussed at paragraphs 5.79 to 5.88, should set the appropriate signals in Regional Area 2 as it recognises that assets that are not likely to be replicated for the purposes of a NGA rollout i.e., reusable assets (ducts, poles, trenches, chambers) should be determined by reference of actual costs from the SMP operator's accounts. On the other hand, assets which are likely to be replicated in Regional Area 2 for the rollout of NGA services i.e., non-reusable assets (cables, cabinets, final drops, MDFs, etc.) should be set by reference to replacement costs or BU-LRAIC+ in order to send the appropriate signals for NGA investment. This approach is consistent with Paragraph 30 (BU-LRAIC+ approach) and Paragraph 34 (Indexed RAB for

¹⁰⁸ 285 exchanges in Regional Area 1 and 831 exchanges in Regional Area 2. Please see Chapter 4 of this document.

Reusable Assets) of the 2013 Recommendation. Please see paragraphs 5.31 and 5.84 of this document for further details.

- 9.32 The proposed costing approach also ensures a consistency of approach for similar services across the same (core) network and between CGA Bitstream and FTTC based Bitstream services.
- 9.33 For Option 1, the NGN Core Model has derived a preliminary average cost for current generation Bitstream and BMB in the Regional WCA Market for 2017/18 as follows:

Figure 31: Proposed CGA BU-LRAIC+ prices across the Regional WCA Market

Current generation Bitstream and BMB	€ - Per port 2017/18	€ - Per Mbps 2017/18
National handover	6.62*	1.18
Regional handover	5.65*	0.52

*Including line share and fault repair

- 9.34 ComReg is of the preliminary view that an average cost based on the BU-LRAIC+ costs across the Regional WCA Market is the appropriate approach.

9.3.2 Option 2: Geographic de-averaged Bitstream and BMB prices based on the cost of providing the services in Regional Area 1 and Regional Area 2

- 9.35 Option 2 means establishing different current generation Bitstream prices for Regional Area 1 and Regional Area 2 based on 285 exchanges in Regional Area 1 and 831 exchanges in Regional Area 2 but excluding the exchanges in the Urban WCA Market which are proposed to be deregulated.
- 9.36 Based on the costing methodology proposed in Chapter 5 of this document this option calculates the cost of provision of current generation Bitstream based on the BU-LRAIC+ methodology in Regional Area 1. This cost is subsequently used to set the current generation Bitstream prices in Regional Area 1 based on the average cost in Regional Area 1.
- 9.37 Similarly, for current generation Bitstream in Regional Area 2, this option calculates the cost of provision of current generation Bitstream based on the BU-LRAIC+ methodology in Regional Area 2. This cost is subsequently used to set the current generation Bitstream prices in Regional Area 2 based on the average cost in Regional Area 2.
- 9.38 ComReg considers that Option 2 is consistent with Paragraph 30 of the 2013 Recommendation, as set out at paragraph 5.31 of this document. The BU-LRAIC+ methodology ensures that where competition is developing and where copper is likely to be replaced by private investors that efficient infrastructure investment is promoted so as to inform investors' decisions.
- 9.39 ComReg considers that with Option 2 there is a risk that geographically de-averaged prices could lead to a digital-divide if the prices for Bitstream services prove more expensive in Regional Area 2. ComReg considers that the mitigation of such outcomes are addressed by Option 1.
- 9.40 For Option 2, the NGN Core Model has derived a preliminary rental average cost for current generation Bitstream and BMB for 2017/18 in Regional Area 1 and in Regional Area 2 as follows:

Figure 32: Proposed current generation Bitstream BU-LRAIC+ prices in Regional Area 1 and Regional Area 2

CGA Bitstream and BMB	€ - Per port	€ - Per Mbps
	2017/18	2017/18
<u>Regional Area 1</u>		
National handover	6.21*	1.07

Regional handover	5.30*	0.46
<u>Regional Area 2</u>		
National handover	6.85*	1.23
Regional handover	5.86*	0.55

*Including line share and fault repair

- 9.41 ComReg is of the preliminary view that de-averaged prices may not be appropriate given the risk of a digital divide.

ComReg’s Preliminary View:

- 9.42 For current generation Bitstream and BMB services in the Regional WCA Market, the monthly rental charge should be derived based on the BU-LRAIC+ methodology, where the costs are averaged across the Regional WCA Market.
- 9.43 In Chapter 14 Figure 37 of this document we set out the BU-LRAIC+ price points for CGA Bitstream and BMB services. In the event that a price floor continues to be warranted then we consider that the proposed prices in Figure 37 (of Chapter 14) should be the maximum / ceiling prices. The price floors are discussed in subsection 9.4 below.

Q. 18 Do you agree with ComReg’s preliminary view that the monthly price for current generation Bitstream and BMB services should be based on the average BU-LRAIC+ costs across the Regional WCA Market as set out in Figure 31 (for 2017/18) and in Figure 37 (of Chapter 14) for each year of the proposed price control period? Please provide reasons for your response.

9.4 Consideration of need for price floor for current generation Bitstream services going forward:

9.4.1 Overview:

- 9.44 Bitstream allows OAOs to replicate the fixed retail broadband offers of the SMP operator. OAOs can offer retail broadband based on WLA inputs, e.g. through Line Share or through full LLU access.
- 9.45 WLA products and services on the wholesale market (provided by Eircom in accordance with regulatory obligations) are purchased by OAOs to enable them to offer a range of retail narrowband and broadband products and services. WLA products allow these OAOs the opportunity to innovate and to differentiate their retail service offerings, both in terms of product characteristics and price and to offer products (and variants of products) which are not necessarily offered by Eircom.
- 9.46 As a vertically integrated operator, Eircom is in a strong position to leverage market power between the WLA Market and the retail broadband market. ComReg considers that absent an appropriate price control, the incumbent operator (Eircom in this case) could set Bitstream prices low enough to act as a disincentive for investment in LLU or Line Share or undermine LLU or Line Share investment that has already taken place. It was on this basis that the obligation contained in the 2012 WBA Price Floors Decision was imposed.
- 9.47 While we agree in principle with the concept of a price floor, in order to preserve competition and to maintain investment incentives in current generation WLA services, as suggested by Jacobs in Chapter 7 of its report at Annex 7, ComReg is also aware that fixed line network operators in Ireland have been focused on investing in NGA infrastructure rather than CGA in recent years and this trend is expected to continue for the duration of the price control period. This is resulting in the migration of wholesale customers from CGA to NGA services and the erosion apparent in the level of CGA demand is such that it has the potential to curtail the economic viability of further investment in LLU or Line Share.
- 9.48 Indeed, the cost modelling work undertaken in the NGN Core Model (as outlined in Chapter 8) to date has indicated that the lower demand assumptions underpinning the REO scenario (as discussed below) could result in a situation where the Eircom BU-LRAIC+ scenario (as outlined at subsection 9.3) is generating lower unit costs than the REO scenario i.e., the price floor (or the REO costs) are above the Eircom costs. This is because the REO cost base achieves lower fill ratios and hence higher unit costs across some exchange sites given the lower levels of demand and the modularity of exchange

equipment. As a result the difference between Eircom's BU-LRAIC+ costs and the costs of a REO are relatively small. Moreover, depending on the footprint of exchanges chosen, in some cases the price floor is in fact in excess of Eircom's BU-LRAIC+ costs.

- 9.49 In the WLA / WCA Market Review we proposed to re-impose a wholesale margin squeeze test between the WLA Market and WCA Markets in order to provide the correct incentive for other OAOs to climb the ladder of investment due to the certainty provided — i.e. that the economic space between LLU or Line Share and WCA (current generation Bitstream) services should be maintained by an appropriate wholesale margin squeeze between WCA and WLA services. However, upon further analysis of the modelling results and the fact that CGA WLA demands are declining ComReg is now of the view that a price floor obligation may no longer be warranted. To make an informed decision on the appropriateness of the possible price floor between LLU or Line Share (in the WLA Market) and current generation Bitstream (in the WCA Markets) ComReg has set out below the detail of how it may operate. ComReg welcomes respondents' views in this regard.
- 9.50 In this section of the document we now outline the proposed principles relevant to assessing a possible price floor between LLU Line Share (in the WLA Market) and current generation Bitstream (in the WCA Markets), should we decide that a price floor continues to be relevant going forward. However, in light of the expectation that CGA demand will continue to decline during the price control period and recognising that future investment appears to be focussed on NGA rather than CGA infrastructure ComReg would welcome industry's views as to the extent that ongoing investment in CGA needs to be protected and promoted in this way.
- 9.51 If we consider that a price floor is no longer warranted for CGA services, we propose that Eircom BU-LRAIC+ costs should be used to set the prices for CGA Bitstream and BMB services, as discussed at subsection 9.3 i.e., the prices at subsection 9.3 will be the CGA Bitstream and BMB price points rather than a price ceilings or maximum prices. Another alternative to consider is whether the CGA Bitstream and BMB prices should be set using the price floor (or the REO costs of an alternative operator) rather than Eircom's costs. ComReg would also welcome industry's views in this regard.
- 9.52 The current Bitstream price floors are set out in the 2012 WBA Price Floors Decision based on a Bitstream cost model. The NGN Core Model, as discussed at Chapter 8 of this document, is now used to estimate the possible Bitstream price floors should one be required going forward. The table below looks at the main changes to the parameters previously used to determine the Bitstream price floors in the 2012 WBA Price Floors Decision compared to the parameters used in the current proposed NGN Core Model.

Figure 33: Comparison of key parameters between existing prices floors and proposed price floors

Existing floors model	Floors derived from the NGN model
OAo scenario	OAo scenario
The OAo is progressively unbundling up to 149 sites	The OAo is present in all 141 local VUA sites from the start
The OAo is a pure broadband player	The OAo also offers voice products and leased lines services
The OAo relies on regulated wholesale inputs (WSEA)	The OAo relies on his own network elements

9.53 In this subsection we review the principles that could apply in order to estimate the price floors going forward, should we decide that this is necessary, as well as the indicative Bitstream price floor outputs from the NGN Core Model.

9.4.2 Margin squeeze principles:

Operator cost base:

9.54 ComReg considers that there are three options for determining an operator cost base for the margin squeeze test, these include:

- Equally efficient operator ('EEO')
- Reasonably efficient operator ('REO')
- Similarly efficient operator ('SEO').

9.55 The EEO cost base is generally based on the Incumbent (i.e., Eircom) costs while the SEO cost base is based on the Incumbents costs adjusted for the fact that other operators do not yet enjoy the same economies of scale and scope as Eircom. The REO cost base is based on a typical entrant operator costs.

9.56 The EEO cost base therefore assumes the efficient costs based on the volumes of the Incumbent. The EEO approach recognises that in a competitive situation, an effective alternative operator will be able to compete only if it is as efficient as the SMP operator. An EEO cost base would result in a less strict margin squeeze test; consequently Eircom could pass these lower retail costs as a lower price to its retail end users without cutting wholesale prices.

- 9.57 A SEO means an operator which shares the same basic cost function as Eircom but does not yet enjoy the same economies of scale and scope as Eircom. The REO is similar to the SEO standard given that they both reflect the fact that OAOs have not achieved the same economies of scope and scale as the SMP operator and this needs to be reflected in the margin squeeze test. In practice, accurate verifiable OAO data is difficult to obtain and to date we have estimated a hypothetically efficient operator's appropriate costs by taking Eircom's costs as a starting point. The information available to us based on Eircom's costs has been more reliable and robust, especially given Eircom's regulatory accounting obligations. Eircom's costs are then adjusted to reflect the lower level of economies of scale and scope available to a hypothetical entrant with a broadband market share of 25% (retail and wholesale CGA demands). ComReg believes that there is no material difference between the value of cost inputs based on REO and SEO.
- 9.58 Currently, the 2012 WBA Price Floors Decision is based on a REO with a 25% broadband market share.
- 9.59 The REO currently applied is based on Eircom's published prices for the relevant cost inputs faced by an OAO when using Line Share. Therefore, the current minimum price floors for Bitstream rentals is set by reference to a hypothetical operator (based on a REO) availing of LLU Line Share.
- 9.60 We consider that should a price floor be required going forward to promote CGA investment, it is appropriate to continue to set the minimum price floors for Bitstream rentals by reference to the efficient costs of a hypothetical operator availing of LLU Line Share, a product proposed to be in the WLA Market. In essence, this sets the minimum price floors by reference to a REO as the minimum price floors are informed by the costs facing a hypothetical REO availing of LLU Line Share and with a lower retail market share than the incumbent.
- 9.61 We consider that, to date, OAOs availing of LLU or Line Share have had the best potential to offer competition to Eircom to the benefit of end users, as such OAOs having made their efficient infrastructure investments, can offer differentiated retail products at possibly lower prices. ComReg believes that such competition would pose a risk to Eircom, therefore absent an appropriate price control, it could be argued that it is in Eircom's interests to set Bitstream prices low enough to dis-incentivise investment in LLU or Line Share. If OAOs remained on Bitstream to provide retail broadband products, the potential for market differentiation to the benefit of end users would be limited.
- 9.62 The proposed use of LLU or Line Share in the minimum price floors should provide the correct signal for operators to invest further in infrastructure to avail of the full unbundled product. In the proposed price floor considered in this Draft

Decision, we assume that the REO also offers a traditional voice (PSTN) service and leased lines services, reflective of current product offerings by OAOs. In such circumstances, for a current generation broadband service, the OAO can avail of the facilities of full LLU and will incur either the associated WLR price, or will be incentivised to unbundle and so incur a lower LLU price. In any event the current generation Bitstream price floor assumes that the PSTN service will continue to absorb the costs of the local loop.

9.63 Eircom, the current SMP operator in the WLA Market and in the Regional WCA Market, has economies of scale due to its advantage of incumbency. The REO cost base recognises that even in the long-run, alternative operators may not be able to compete with the SMP operator due to the fact that they do not have similar economies of scale / scope as Eircom. In addition, should the market for CGA services fall below a certain point effective competition using LLU or Line Share based services may be less viable and the need to foster further investment in CGA may be less relevant.

9.64 However, if it is considered that further CGA investment should be promoted, it is reasonable to continue to use a REO, with a lower market share and therefore lower economies of scale, to set the minimum price floors for Bitstream. ComReg considers that to use Eircom's unit costs (EEO cost base) based on a larger installed end user base would not encourage LLU Line Share based entry and therefore would not encourage appropriate infrastructure competition. This would result in OAOs remaining on Bitstream to provide retail broadband products, which would reduce the potential for market differentiation and dynamic efficiency gains to the detriment of end users.

9.65 ComReg is of the preliminary view that, in the case where we consider a price floor is deemed necessary to promote CGA investment going forward, we should continue to use the REO cost base, using Eircom's regulated Line Share price, for the current generation Bitstream price floors.

Market share:

9.66 ComReg considers that there a number of options to account for differences in economies of scale between Eircom and OAOs. These options include:

- 10% market share;
- 15% market share; and
- 25% market share.

- 9.67 We consider that the correct hypothetical operator (REO) to use in the margin squeeze test is one already on the ladder of investment and moving from WCA to WLA services. In setting the REO, it is usual to consider the nature and size of existing and likely entrant OAOs availing of LLU Line Share. Therefore, a price floor should be based on the market as it is today and likely to be over the next three years. The assumed market share for the price floors in the 2012 WBA Price Floors Decision is an operator with a 25% fixed broadband market share. We consider that a 25% market share of the broadband market appears to remain appropriate.
- 9.68 The risk of having too high a market share assumption would be to create a duopoly situation in this segment of the market. In addition, a 25% market share is consistent with a market made up of 4 operators with symmetric market shares (100%/4) or with a market made of 3 operators with asymmetric market shares. While a 33% market share is only consistent with a duopoly situation with asymmetric market share or a market made up of 3 operators with symmetric market shares (100%/3), the latter is less likely in reality given existing market share asymmetries. As a consequence, a market share of 25% is more consistent with the objective of incentivising infrastructure based competition with more than 2 operators.
- 9.69 ComReg is of the preliminary view that a hypothetical operator with a market share of 25% is the relevant volume base to apply in context of the proposed Bitstream price floor.

OAO footprint:

- 9.70 In the existing Bitstream price floor, determined in the 2012 WBA Price Floors Decision, we assumed a footprint of 149 exchanges, as being the likely areas where LLU would be rolled out by alternative operators over the price control period.
- 9.71 In the context of the revised Bitstream price floor in this Draft Decision, we considered two options:
- Option 1: The REO is only present at sites already unbundled i.e. 79 sites;
or
 - Option 2: The REO should be present in all 141 Local VUA sites, nationally.
- 9.72 The first option considers that our objective is only to protect those OAOs that have already unbundled exchanges and that no further investment in LLU Line Share is expected to take place over the price control period given the migration from CGA to NGA services.

9.73 The second option considers that our objective is to both protect existing investment in LLU and also to encourage further investment by OAOs in those Local VUA sites not yet unbundled. In the context of current generation Bitstream there is no requirement to access Remote VUA site (via Local VUA sites) and therefore the 141 Local VUA sites in the WCA Market is the relevant footprint of exchanges. The proposed footprint of 141 exchanges should ensure that existing LLU investment is protected in those sites already unbundled as well as providing the appropriate investment signals for investment in LLU / Line Share by OAOs in the remaining relevant sites in the WCA Market.

9.74 Both options at paragraph 9.71 have been assessed in the NGN Core Model as part of our consideration of whether a price floor for CGA Bitstream is required going forward. Please see the indicative results in the tables below.

Indicative price floors:

9.75 The indicative price floors, based on the modelling approach at Chapter 8 of this document and the proposed assumptions set out at paragraphs 9.54-9.74 are set out in Figure 34, for 2017/18:

Figure 34: Indicative national price floors for current generation Bitstream services based on the various footprint options:

Description	Per port	Per Mbps
	€ 2017/18	€ 2017/18
<u>Option 1: OAOs present in sites already unbundled (79 sites)</u>		
National handover	6.23*	1.42
Regional handover	4.29*	0.61
Option 2: OAOs present in all 141 Local VUA sites		
National handover	6.53*	1.45
Regional handover	4.46*	0.62

*Including Line Share and fault repair costs

ComReg's Preliminary View

9.76 While we consider that for the reasons set out at paragraphs 9.47 to 9.50 that a price floor for CGA Bitstream services may no longer be warranted, ComReg is of the preliminary view that should a price floor be required to promote CGA investment, the margin squeeze test between current generation WLA services (LLU Line Share) in the WLA Market and WCA services (current generation Bitstream) in the WCA Markets should be based on the following principles:

- A REO cost base;
- An assumed operator already in the market and with a market share of 25%;
- Assessed based on the footprint of 141 Local VUA sites (or 141 exchanges) in the WCA Market.

9.77 The indicative current generation Bitstream national price floors is set out in Figure 34 above and in Figure 38 (of Chapter 14) of this document, for 2017/18.

9.78 In the case where a price floor is no longer warranted, Eircom's BU-LRAIC+ costs (at subsection 9.3) should be set as the price points for CGA Bitstream and BMB services in the Regional WCA Market, based on the prices set out in Figure 37 of Chapter 14 of this document.

Q. 19 Do you consider that a price floor for CGA Bitstream services is no longer required for the proposed price control period given the declining demand in CGA investment? Please provide reasons for your response.

Q. 20 If you consider that a price floor for CGA services is appropriate, do you agree with ComReg's preliminary view on the margin squeeze assumptions and the indicative price floors (for 2017/18) for current generation Bitstream services from the NGN Core Model? Please provide reasons for your response.

Q. 21 Do you consider that the price points for CGA Bitstream and BMB services should be set based on Eircom's BU-LRAIC+ costs or the BU-LRAIC+ costs of a REO i.e., the price floors? Please provide reasons for your response.

Chapter 10

10 Margin squeeze tests in WLA Market

10.1 Introduction

- 10.1 In the WLA / WCA Market Review we reached the preliminary view that a margin squeeze obligation should be imposed in the WLA Market. In addition, we specified a number of margin squeeze tests that should apply in the WLA Market. Please note that this Chapter relates to the margin squeeze principles relevant to both current generation and next generation services in the WLA Market.
- 10.2 In this chapter we further specify the principles that should apply to those margin squeeze tests in the WLA Market:
- a) Wholesale margin squeeze test between WLA services provided in WLA Market and WCA services provided in the WCA Markets i.e., the wholesale margin squeeze test between FTTH based VUA in the WLA Market and FTTH based NGA Bitstream in the WCA Markets.
 - b) Retail margin squeeze test between WLA services provided in the footprint corresponding to the Urban WCA Market and retail product or products delivered by WLA in the footprint corresponding to the Urban WCA Market.
- 10.3 Each of the proposed tests are discussed in detail later in this chapter.

10.2 Competition concerns in the WLA Market

- 10.4 As set out in Sections 7 and 8 of the WLA / WCA Market Review, given Eircom's proposed SMP designation in the WLA Market¹⁰⁹ (as well as its current designation) there are concerns that it could leverage its market power into adjacent vertically or horizontally related markets through price and non-price means with the effect of foreclosing or excluding competitors in downstream retail and/or related wholesale markets.
- 10.5 Eircom, as a vertically-integrated operator with SMP in the WLA Market, has the ability and incentive to use its market power in the WLA Market to affect the competitive conditions in downstream wholesale and/or retail markets, in particular, through its ability to control the key inputs used by wholesale customers of Eircom — which then compete against Eircom in such markets. This could result in a distortion of or restriction in competition in these

¹⁰⁹ Eircom had a market share of almost 100% in Q1 2016.

downstream markets, ultimately resulting in harm to end users, potentially in the form of higher prices, lower output/sales, reduced quality or end user choice.

- 10.6 In the WLA Market Eircom provides access to its local access network, and related facilities such as ducts and poles, to other operators on a rental basis. This is an important contributory factor in developing competition as it encourages operators to provide services, which they may not otherwise do, by maximising the use of their own network inputs and equipment where viable, thereby intensifying competition.
- 10.7 ComReg considers that from a regulatory perspective, it is important that efficient infrastructure investment is promoted so as to encourage OAOs to 'climb the ladder of investment'. In order for these incentives to exist, OAOs must have sufficient margins or 'economic space' between different wholesale products or 'rungs' on the ladder of investment. This should, in turn, promote the development of effective retail and downstream competition.
- 10.8 ComReg considers that in the absence of an appropriate price control on Eircom obliging it to maintain such an economic space between its wholesale products (and between retail and wholesale products), by virtue of its control of the underlying access infrastructure and its presence at both wholesale and retail levels, Eircom would have the ability and incentives to price its wholesale access inputs in such a way as to dampen the competitive constraints it faces at the retail and downstream wholesale levels from OAOs that use Eircom's wholesale products. This ultimately could allow Eircom to extract supra-normal profits through either higher retail prices for end users or through maintaining a dominant share of the market. Eircom could price its retail broadband services associated with WLA inputs in those areas corresponding to the Urban WCA Market in such a way that it could foreclose other operators using WLA wholesale inputs in similar geographic areas by way of a margin squeeze. Therefore, in the WLA / WCA Market Review we reached the preliminary view that a margin squeeze obligation should be imposed in the WLA Market.
- 10.9 Even if cost oriented prices for FTTC based VUA and for copper based services in the WLA Market would prevent Eircom from increasing its wholesale charge, Eircom can, by reducing its retail price, ensure that certain OAOs may not be able to match the prevailing retail price and still earn sufficient margin to cover their own costs. In essence, OAOs may not be able to replicate Eircom's retail price and as a result Eircom could foreclose the markets. Any OAOs that had been forced out of the market(s) due to these price reductions would be inhibited from returning even when margins are restored if they feared that Eircom would respond by repeating the retail price reductions to squeeze margins again.

10.10 The remainder of this chapter is discussed under the following headings:

1. Wholesale margin squeeze test between WLA services and WCA services; and
2. Retail margin squeeze test between WLA services and retail services corresponding to the Urban WCA Market.

10.3 Wholesale margin squeeze test between WLA services and WCA services

10.3.1 Overview:

- 10.11 To achieve ComReg's regulatory objectives of promoting efficient investment and protecting the interests of end users, it is important to ensure that there are appropriate protections and incentives in place for OAOs who choose to 'climb the ladder of investment', as opposed to relying on less infrastructure intensive options.
- 10.12 The higher up the 'ladder' that a competitor ascends the more investment they must make. It is important that when such investment decisions are taken by competitors that they have a predictable regulatory framework they can rely on to ensure investments are not undermined by anti-competitive behaviour. It is important to ensure that Eircom cannot squeeze competitors between the relative prices of its different wholesale products across and within regulated markets.
- 10.13 ComReg considers that preserving a sufficient economic space between different wholesale inputs offered by Eircom may be necessary so as to promote and foster sustainable and effective competition in the provision of retail services to end-users.
- 10.14 ComReg considers that infrastructure-based competition, where economically viable, from OAOs using LLU or VUA will ensure more sustainable competition in the provision of broadband (and other services) to the ultimate benefit of end users. In general, operators using LLU or VUA are better enabled to offer differentiated retail products and to set prices independently of Eircom in comparison to OAOs using solely Bitstream and SB-WLR which are more tied to Eircom.

- 10.15 Consequently, Eircom may be incentivised to set WCA (Bitstream) prices lower than WLA (LLU / VUA) prices to discourage investment in LLU or VUA even where alternative investment is viable. Therefore, it is important that regulation ensures that LLU / VUA based WLA competition is encouraged where it is viable. In order to ensure that appropriate incentives are maintained to encourage investment in the relevant WLA services, ComReg proposed in Section 8 of the WLA / WCA Market Review that a sufficient economic space should be maintained between the prices for WLA services and WCA services.
- 10.16 We also proposed in the WLA / WCA Market Review that the margin squeeze test currently specified in the 2013 Bundles Decision regarding Downstream Wholesale Services¹¹⁰ should continue. Given our concerns regarding a potential margin squeeze between WLA and WCA services particularly in those areas falling within the Urban WCA Market (proposed to be deregulated) we proposed that the price at which Eircom sells or offers a Downstream Wholesale Service must be greater than the sum of: (i) ULMP costs and (ii) the unavoidable costs of a reasonably efficient operator that must be incurred in order to provide a service equivalent to the relevant Downstream Wholesale Service.
- 10.17 In addition, we proposed in Section 8 of the WLA / WCA Market Review that the same principles should apply to next generation WLA services generally (including for example any new forms of unbundling that may emerge during the lifetime of the review), and specifically, FTTC and FTTH based VUA to ensure the correct incentives and economic space is available to other operators currently in the market or to potential new entrants. This should ensure that the promotion of efficient investment is maximised and competition at the highest level of the 'ladder' is promoted to the benefit of end users.
- 10.18 The rest of this subsection is discussed under the following heading:
- Margin squeeze test between FTTH based VUA and FTTH based Bitstream.

¹¹⁰ A Downstream Wholesale Service means a wholesale service which is on offer or on sale by Eircom to Access Seekers downstream from the WPNIA Market (now the WLA Market) and contains a Full Unbundling component (examples of such downstream wholesale services include, for example, SB-WLR and naked DSL (standalone broadband)).

10.3.2 Wholesale margin squeeze test for FTTH based VUA

Background:

- 10.19 As set out in Section 8 of the WLA / WCA Market Review, for FTTH based VUA, ComReg has recognised the uncertainty regarding the precise estimation of costs and the penetration levels for FTTH based VUA services.
- 10.20 ComReg considered that as FTTH based VUA penetration levels are still very low¹¹¹ and difficult to forecast the future penetration rate, the FTTH price is likely to be very sensitive to the penetration rate such that an incorrect forecast could distort future market development — if the price is too high, it may deter alternative operators from investing and if the price is too low, Eircom may reduce its investments in FTTH.
- 10.21 In the WLA / WCA Market Review ComReg reached the preliminary view that FTTH based VUA should be subject to a margin squeeze obligation; one against FTTH based services in WCA Markets; and a second against FTTH based retail services (see subsection 10.4) in the Urban market.
- 10.22 The proposed wholesale margin squeeze test between FTTH based VUA and FTTH based WCA services should ensure that the price for FTTH based VUA is not set too high relative to the price for FTTH based Bitstream such that alternative operators are encouraged to invest in FTTH based VUA in order to climb the ladder of investment.
- 10.23 ComReg considers that there should be no cost differential in the port price for FTTH based VUA between different profiles (or speeds), except where justifiable cost differences arise. On that basis we propose that there should be one single wholesale FTTH based VUA price, which is consistent with the fact that VUA is an unrestricted product (in terms of speed) mandated in the WLA Market.
- 10.24 The rest of this subsection is discussed under the following headings:
- Operator cost base;
 - Appropriate cost standard;
 - Operator market share; and
 - Product-by-product or portfolio assessment.

¹¹¹ There are 6,752 FTTH subscriptions at Q4 2016.

Operator cost base:

- 10.25 ComReg considers that there are three options for determining an operator cost base for the margin squeeze test, these include:
- Equally efficient operator ('**EEO**')
 - Reasonably efficient operator ('**REO**')
 - Similarly efficient operator ('**SEO**').
- 10.26 The EEO cost base is generally based on the Incumbent costs i.e., Eircom's costs while the SEO cost base is based on the Incumbents costs adjusted for the fact that other operators do not yet enjoy the same economies of scale and scope as Eircom. The REO cost base is based on a typical entrant operator costs.
- 10.27 The EEO cost base therefore assumes the efficient costs based on the volumes of the Incumbent. The EEO approach recognises that in a competitive situation, an effective alternative operator will be able to compete only if it is as efficient as the SMP operator. An EEO cost base would result in a less strict margin squeeze test; consequently Eircom could pass these lower retail costs as a lower price to its retail end users without cutting wholesale prices.
- 10.28 A SEO means an operator which shares the same basic cost function as Eircom but does not yet enjoy the same economies of scale and scope as Eircom. The REO is similar to the SEO standard given that they both reflect the fact that OAOs have not achieved the same economies of scope and scale as the SMP operator and this needs to be reflected in the margin squeeze test.
- 10.29 In practice, accurate verifiable OAO data is difficult to obtain and to date we have estimated a hypothetically efficient operator's appropriate costs by taking Eircom's costs as a starting point. The information available to us based on Eircom's costs has been more reliable and robust, especially given Eircom's regulatory accounting obligations. Eircom's costs are then adjusted to reflect the lower level of economies of scale and scope available to a hypothetical entrant with a retail broadband market share of 25%. ComReg believes that there is no material difference between the value of cost inputs based on REO and SEO.
- 10.30 Going forward we are considering the use of REO data, depending on reliable and robust costing data from OAOs. In the absence of such data, we intend to continue to use Eircom's costs adjusted to reflect lower level economies of scale / scope, known as SEO. We consider that this approach should be a good proxy for REO based estimates.

- 10.31 As the take-up of VUA so far remains low, the REO / SEO cost base should ensure that the FTTH based VUA price is lower than the FTTH based Bitstream price and therefore alternative operators are incentivised to invest in FTTH based VUA (as opposed to FTTH based NGA Bitstream). Therefore, OAOs become less dependent on Eircom's network. If there is a significant take-up of VUA in the future then we may consider a move to EEO costs. We will keep this under review.
- 10.32 TERA also recommends the use of REO / SEO regarding the wholesale FTTH based VUA margin squeeze test, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.
- 10.33 ComReg is of the preliminary view that the REO cost base (or the SEO cost base as a proxy for REO in the absence of REO cost data) should be applied to the costs in the margin squeeze test between FTTH based VUA (in the WLA Market) and FTTH based Bitstream (in the WCA Markets).

Appropriate cost standard:

- 10.34 The cost standard defines which portion of shared costs should be recovered through the price of a given service.
- 10.35 ComReg has considered the following options for the appropriate cost standard in the retail margin squeeze tests:
- Average variable cost ('**AVC**');
 - Average avoidable cost ('**AAC**');
 - LRAIC;
 - LRAIC plus;
 - Average total costs ('**ATC**').
- 10.36 The AVC standard is based on the variable cost of producing an additional unit of output. AVC does not include an allocation of fixed costs, which are the major cost component faced by telecom operators. AAC represent the short-run avoidable variable and incremental fixed costs of the additional sales of the product in question. This standard is distinct from AVC insofar as it includes fixed costs which would otherwise be avoided if the incremental output were no longer produced.

- 10.37 The remaining three options presented above all include a fixed cost allocation. LRAIC is the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run. This approach does not include an apportionment for common costs. 'LRAIC plus' is 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 joint and common costs. ATC is the average total cost and includes variable, fixed, joint and common costs based on historical cost data but with no adjustments for efficiencies. ATC requires an operator with SMP to price at levels that include appropriate amounts of variable, fixed and common costs.
- 10.38 We consider that the 'LRAIC plus' is more appropriate in the context of the wholesale margin squeeze test between FTTH based VUA and FTTH based Bitstream. The 'LRAIC plus' promotes entry, takes account of all incremental costs of starting to provide a service and includes a mark-up for common costs. It is a forward looking approach which can reflect the cost structure characterised by both economies of scale and scope. It also promotes entry to the market and encourages investment in FTTH based VUA which is consistent with ComReg's regulatory objectives. The 'LRAIC plus' costs are also the calculus faced by any operator when deciding to enter or expand in the market.
- 10.39 TERA also recommends the use of the 'LRAIC plus' approach for the cost standard for FTTH based VUA margin squeeze test, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.
- 10.40 On the basis of Eircom's commitment with the DCCA to rollout FTTH to 300k homes in Regional Area 2 we consider that the costs assessed in the margin squeeze test between FTTH based VUA and FTTH based Bitstream should take account of this investment. This should help to encourage VUA investment in the WLA Market.
- 10.41 We propose that inclusion of a risk premium is not necessary for FTTH as we are not proposing a cost oriented price. In addition, the assets relevant for the FTTH margin squeeze obligation are not a part of the access network but rather part of the core network. These assets are not therefore subject to a risk premium. Please also see paragraphs 6.58-6.59.
- 10.42 ComReg is of the preliminary view that the 'LRAIC plus' cost standard should be applied in the context of the wholesale margin squeeze test between FTTH based VUA and FTTH based Bitstream in order to provide the appropriate investment incentives to operators.

Operator market share:

10.43 ComReg proposes that there are three options to account for differences in economies of scale between Eircom and OAOs. These options are:

- 10% market share;
- 15% market share; and
- 25% market share.

10.44 In order to avoid inefficient entry to the market ComReg considers that a 25% market share appears reasonable but we welcome the views of industry. This is consistent with the market share assumed in the existing NGA margin squeeze tests.

10.45 The risk of having too high a market share assumption would be to create a duopoly situation in this segment of the market. In addition, a 25% market share is consistent with a market made up of 4 operators with symmetric market shares ($100\%/4$) or with a market made of 3 operators with asymmetric market shares. While a 33% market share is only consistent with a duopoly situation with asymmetric market share or a market made up of 3 operators with symmetric market shares ($100\%/3$), the latter is less likely in reality given existing market share asymmetries. As a consequence, a market share of 25% is more consistent with the objective of incentivising infrastructure based competition with more than 2 operators.

10.46 ComReg is of the preliminary view that a hypothetical operator with a market share of 25% may be the relevant volume base to apply in context of the wholesale margin squeeze test between FTTH based VUA and FTTH based Bitstream.

Product-by-product or portfolio analysis:

10.47 A margin squeeze test can be conducted either on:

- A single product offered by the SMP operator; or
- A number of products as a whole i.e., a portfolio of products.

10.48 The portfolio test allows Eircom some flexibility to price above or below the overall costs on certain products so long as it ensures that the weighted average total costs are covered by the revenues. The product-by-product approach on the other hand means that Eircom would have to pass the margin squeeze test on a product-by-product basis where each offer would have to pass its own LRAIC+ or ATC. Therefore, Eircom would not have the flexibility to price above or below the overall costs on certain broadband products. Please also see paragraphs 10.74 to 10.77.

10.49 As set out in paragraph 10.23 ComReg proposes that there should be one single wholesale FTTH based VUA price (except where justifiable cost differences arise), which is consistent with the fact that the VUA product mandated in the WLA Market is an unlimited / unrestricted product in terms of speed. On that basis we propose that the wholesale margin squeeze test between FTTH based VUA and FTTH based Bitstream should be assessed on a portfolio basis where the single FTTH based VUA price (subject to justifiable cost differences) is assessed against a portfolio of variant (or different profile speeds) for FTTH based Bitstream prices (where the difference in prices should not be greater than the differences in costs associated with the various FTTH Bitstream profile speeds) in the WCA Markets.

ComReg's Preliminary View

10.50 ComReg is of the preliminary view that the margin squeeze test between FTTH based VUA (in the WLA Market) and FTTH based Bitstream (in the WCA Markets) should be based on the following:

- REO cost base (or the SEO cost base as a proxy for REO in the absence of REO cost data);
- LRAIC+ cost standard;
- An assumed operator market share of 25%; and
- A single FTTH based VUA price (except where justifiable cost differences arise to warrant separate prices) assessed against a portfolio of variant FTTH based Bitstream prices (where the difference in prices should not be greater than the differences in costs associated with the various FTTH Bitstream profile speeds).

10.51 Please see Chapter 12 of this document for the proposed Regulatory approval mechanism regarding the proposed price floor in relation to the price for FTTH based VUA.

Q. 22 Do you agree with ComReg's preliminary views regarding the principles of the wholesale margin squeeze test between FTTH based VUA and FTTH based Bitstream? Please provide reasons for your response.

10.4 Retail margin squeeze test between WLA services and retail services corresponding to the Urban WCA Market

10.4.1 Background

- 10.52 As set out in Section 8 of the WLA / WCA Market Review, ComReg proposed to geographically differentiate the pricing remedies in the WLA Market such that a retail margin squeeze obligation would apply to Eircom in those exchanges proposed to be deregulated on foot of the review of the Urban WCA Market.
- 10.53 ComReg is concerned that Eircom could price its retail broadband services in those areas corresponding to the Urban WCA Market in such a way that it could foreclose other operators using WLA wholesale inputs (e.g., LLU or VUA) in similar geographic areas by way of a margin squeeze.
- 10.54 In the case of FTTH based VUA services, this is also necessary as a control against excessive pricing as no cost orientation obligation is proposed for these services. A test solely against WCA services would be insufficient because FTTH based Bitstream services in the Urban WCA Market are proposed to be de-regulated. In this circumstance, it would be possible to pass a margin squeeze test between WLA and WCA services and yet still create a margin squeeze against retail services thereby foreclosing competition in the WLA Market.
- 10.55 ComReg reached the preliminary view in the WLA / WCA Market Review that Eircom should be subject, in the WLA Market, to a retail margin squeeze obligation in those urban exchanges corresponding to the Urban WCA Market such that there is a sufficient margin between prices for Eircom's standalone and bundled retail broadband services and the relevant WLA inputs (in the Urban WCA Market). This obligation should apply to all WLA services including CGA (e.g., LLU) and NGA (e.g., VUA) based services. While this Draft Decision covers the retail margin squeeze test appropriate for standalone services, a separate consultation on bundles will be published shortly and should address services sold in a bundle.
- 10.56 The rest of this subsection is discussed under the following headings:
- Operator cost base;
 - Appropriate cost standard;
 - Portfolio or product-by-product analysis;
 - Appropriate model; and

- Appropriate retail costs.

10.4.2 Operator cost base:

10.57 ComReg considers that there are three options for determining an operator cost base for the margin squeeze test, these include:

- Equally efficient operator ('EEO')
- Reasonably efficient operator ('REO')
- Similarly efficient operator ('SEO').

10.58 Please see paragraphs 10.26 to 10.30 for a discussion of each option.

10.59 As the proposed retail margin squeeze test in the WLA Market relates only to those exchanges in the footprint corresponding to the Urban WCA Market, which are competitive, we propose that the EEO cost base should be applied.

10.60 We consider that the proposed EEO cost base is reflective of the fact that there are other large broadband operators competing with Eircom in those exchanges corresponding to the Urban WCA Market and therefore Eircom should have some additional flexibility regarding the level of its retail costs to be recovered in its retail price.

10.61 The EEO cost base assumes the efficient costs based on the volumes of the Incumbent (Eircom). The EEO approach recognises that in a competitive situation, an effective alternative operator will be able to compete only if it is as efficient as the SMP operator. An EEO cost base would result in a less strict margin squeeze test; consequently Eircom could pass these lower retail costs as a lower price to its retail end users without cutting wholesale prices.

10.62 TERA also recommends the use of the EEO cost base regarding the retail margin squeeze test for WLA services associated with the footprint corresponding to the Urban WCA Market, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.

10.63 ComReg is of the preliminary view that the retail margin squeeze test between the price for WLA copper based services provided in the footprint corresponding to the Urban WCA Market and the retail price for the retail equivalent copper based service provided by way of WLA copper inputs in the footprint corresponding to the Urban WCA Market should be based on the EEO cost base. Similarly, the retail margin squeeze test between the price for WLA NGA based services provided in the footprint corresponding to the Urban WCA Market and the retail price for the retail equivalent NGA based service provided

by way of WLA NGA inputs in the footprint corresponding to the Urban WCA Market should be based on the EEO cost base.

10.4.3 Appropriate cost standard

10.64 The cost standard defines which portion of shared costs should be recovered through the price of a given service.

10.65 ComReg has considered the following options for the appropriate cost standard in the retail margin squeeze tests:

- Average variable cost ('**AVC**');
- Average avoidable cost ('**AAC**');
- LRAIC;
- LRAIC plus;
- Average total costs ('**ATC**').

10.66 Each of the above options are discussed at paragraphs 10.36-10.37.

10.67 In order to determine the relevant wholesale costs between VUA and NGA Bitstream we propose that a LRAIC+ approach should be used, which is consistent with the LRAIC+ approach used for cost oriented FTTC based NGA services (at Chapter 5 of this document) and the wholesale margin squeeze test for FTTH based VUA, as discussed at paragraph 10.38 of this document.

10.68 ATC is the average total cost and includes variable, fixed, joint and common costs based on historical cost data but with no adjustments for efficiencies. ATC requires an operator with SMP to price at levels that include appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. For example, an operator will consider the current and future potential competitive environment (including price) when formulating its business plan when deciding to enter or expand in the market. ComReg is of the preliminary view that this is the most appropriate way to promote competition under regulation, and to avoid further deterioration in the already weak nature of competition in SMP markets.

10.69 ComReg believes that it is legitimate and appropriate for ComReg to use ATC as the base for calculating Eircom's retail costs in an ex-ante context. Looked at differently, ComReg believes that relying only on any other cost measure would exclude any assessment of common costs and would therefore ignore the market entry or expansion realities faced by OAOs and new entrants.

- 10.70 We consider that to apply an AAC cost rule in an ex-ante context could lead to sub-optimal entry conditions with little entry occurring. This would be to the detriment of competition and, ultimately, end users. In addition, the avoidable costs is the relevant measure when assessing whether there are concerns around future exclusion or exit of current efficient competitors from the retail market. Given that this is not the issue, we consider that the ATC approach are appropriate cost standards to consider in this case.
- 10.71 While section (67) of the 2013 Recommendation suggests the LRIC+ approach: “...NRAs should apply a LRIC+ model...” we consider that the difference between ATC and LRAIC+ in the context of the retail costs is generally not material and therefore we propose to use the ATC approach. In addition, we currently use Eircom’s accounts to derive these retail costs, which is more akin to the ATC approach.
- 10.72 ComReg is of the preliminary view that the retail margin squeeze test between the price for WLA services provided in the footprint corresponding to the Urban WCA Market and the retail price for retail services provided by way of WLA inputs in the footprint corresponding to the Urban WCA Market should be based on ATC for determining the appropriate retail costs (with a LRAIC+ applied in the context of the wholesale costs between VUA and NGA Bitstream).

10.4.4 Product-by-product or portfolio

- 10.73 A margin squeeze test can be conducted either on:
- A single product offered by the SMP operator; or
 - A number of products as a whole i.e., a portfolio of products.
- 10.74 The portfolio test allows Eircom some flexibility to price above or below the retail and wholesale costs on certain retail products so long as it ensures that the weighted average total retail and wholesale costs are covered by the retail revenues.
- 10.75 For the portfolio approach, entrants are also likely to offer a portfolio of services and could choose to compete with Eircom across a similar product portfolio. We recognise that the main benefit of conducting a margin squeeze test across a portfolio of products is that it offers the operator greater flexibility in designing its offerings, and consequently could lead to greater innovation in the market.
- 10.76 There are sound economic reasons to allow some efficient price discrimination and hence cost recovery from a broader range of services through the portfolio approach.

- 10.77 The product-by-product approach on the other hand means that Eircom would have to pass the margin squeeze test on a product-by-product basis where each offer would have to pass its own ATC. Therefore, Eircom would not have the flexibility to price above or below the retail costs on certain retail current generation and / or NGA broadband products.
- 10.78 While the 2013 Recommendation states that “*The NRA need not run the test for each and every new retail offer but only in relation to **flagship products**¹¹² to be identified by the NRA*”¹¹³ [**emphasis added**], we propose to apply the portfolio approach in the context of the WLA retail tests associated with the footprint corresponding to the Urban WCA Market. We consider that the portfolio approach recognises that Eircom is facing retail competition from other large operators in those particular exchanges (see Chapter 4, Figure 5 of this document) and it allows it some pricing flexibility so long as the overall portfolio of retail offers has a positive margin.
- 10.79 In the Urban WCA Market where the WLA retail margin squeeze tests are intended to apply, there is competition from other large operators. Therefore, ComReg considers that the portfolio approach (based on LRAIC+ for the wholesale costs and ATC for the retail costs) is appropriate.
- 10.80 The proposed portfolio approach should apply to the blended CGA based WLA services and separately to the blended NGA based WLA services. By this we mean that Eircom can price above or below the retail and wholesale costs on certain retail WLA CGA based products so long as it ensures that the weighted average total retail and wholesale costs for these products are covered by the retail revenues of WLA CGA based products. Separately, we propose that Eircom can price above or below the retail and wholesale costs on certain retail WLA NGA based products so long as it ensures that the weighted average total retail and wholesale costs for these products are covered by the retail revenues of WLA NGA based products.
- 10.81 This approach should provide Eircom the flexibility to compete in the retail market while ensuring that OAOs dependent on Eircom’s wholesale inputs have a sufficient margin over the portfolio of different NGA broadband services and separately for current generation broadband services sold in the exchanges corresponding to the footprint of the Urban WCA Market.

¹¹² Annex II, part (iv) of the 2013 Recommendation states that “*NRAs should assess the most relevant retail products including broadband services (‘flagship products’) offered by the SMP operator on the basis of the identified NGA-based wholesale access layer. NRAs should identify flagship products on the basis of their current and forward-looking market observations, in particular taking account of their relevance for current and future competition. This should include an assessment of retail market shares in terms of the volume and value of products based on NGA regulated wholesale inputs and, where available, advertising expenditure...*”

¹¹³ Section (66) of the 2013 Recommendation.

10.82 ComReg is of the preliminary view that the portfolio approach should apply to the retail margin squeeze test for CGA based WLA services in the footprint corresponding to the Urban WCA Market and separately to the retail margin squeeze test for NGA based WLA services in the footprint corresponding to the Urban WCA Market.

10.4.5 Appropriate model:

10.83 There are two model options in the context of the retail margin squeeze tests:

- Discounted cash-flow ('**DCF**') model (also known as a dynamic model); or
- Static model.

10.84 A DCF (or dynamic) model estimates all future cash flows of the offer under consideration and discounts them to arrive at their present value. A static model is an analysis over one period, generally an accounting year.

10.85 A DCF model has been used to date, both in the context of the existing retail margin squeeze assessment for standalone NGA (2013 NGA Decision) and for existing current generation services in the current WBA market (now called the WCA Market) in the 2014 WBA Pricing Decision.

10.86 The DCF model is particularly relevant for the NGA network given the uncertainty of demand for NGA products, the increasing demand over time and the need to make significant investments. As the penetration rates for FTTH and FTTC based NGA services can change significantly over time, a static approach does not take these dynamics into account, so the per line price would be too high during the initial years of deployment.

10.87 In addition, the 2013 Recommendation advocates the DCF model, stating that the profitability should be assessed "*...on the basis of a dynamic multi-period analysis, such as the discounted cash flow (DCF) approach.*"¹¹⁴

10.88 TERA also recommends the DCF approach, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.

10.89 ComReg is of the preliminary view that the DCF model approach continues to be appropriate for the retail WLA tests in the footprint corresponding to the Urban WCA Market.

10.4.6 Appropriate retail costs:

10.90 We consider that the retail cost categories in the context of the WLA retail margin squeeze tests should be similar to the retail costs used in the context of

¹¹⁴ See Annex II, part 5 of the 2013 Recommendation.

the retail margin squeeze tests for standalone NGA and CGA services in the Regional WCA Market.

- 10.91 With regard to the DCF approach, we propose to use the current structure and underlying information used for in the DCF models associated with the NGA and CGA retail margin squeeze tests in the Regional WCA Market in order to apply the retail margin squeeze tests for WLA services in the footprint corresponding to the Urban WCA Market.
- 10.92 In summary, as a starting point, the DCF approach uses Eircom's costs — both historic which are based on Eircom's audited Regulated Accounts and Eircom's forecast of those costs — as a data source. These costs both historic and forecast are then adjusted to reflect the likely costs that a new retail broadband market entrant would likely incur.
- 10.93 As such, the DCF approach includes one-off start-up costs, ongoing fixed and variable operating costs including capital costs and a terminal value. In addition, a number of costs are further inflated by an overhead mark-up of 25% to create an additional margin buffer to reflect the likely new retail broadband market entrant mark-up of common costs. The cost categories which incur this additional mark-up are: Sales; Product Development; Help Desk; and Order Handling.
- 10.94 The proposed cost categories, consistent with those used for NGA and CGA retail margin squeeze tests as discussed in Chapter 11 of this document, are set out below.
- **Sales costs:** These are the one-off start-up costs and ongoing customer acquisition costs faced by a new entrant to attain new residential and business end users. These costs are further inflated by a mark-up of 25% to take into account the likely higher costs of a new entrant (see paragraph 10.93).
 - **Marketing / Advertising:** These are the one-off and ongoing costs including campaign costs and are divided into initial set-up costs and promotions.
 - **Product management & development:** These are the one-off start-up costs and ongoing costs associated with the product management & development function of a new entrant. These costs take into account new product developments over an ongoing product refreshment cycle. These costs are further inflated by a mark-up of 25% to take into account the likely higher costs of a new entrant (see paragraph 10.93).
 - **Accommodation:** These are the one-off start-up costs and ongoing costs associated with the Accommodation of a new entrant.

- **Help Desk:** These are the one-off start-up costs and ongoing costs associated with the Help Desk function of a new entrant. These costs reflect a higher cost during the initial two years after start-up and followed by a lower ongoing cost per subscriber. All Help Desk costs are further inflated by a mark-up of 25% to take into account the likely higher costs of a new entrant (see paragraph 10.93).
- **Billing:** These are the one-off start up costs and ongoing costs per subscriber associated with the Billing function of a new entrant. Billing costs also include a credit management cost which is based on a percentage of revenue.
- **Modems:** This category takes into account the actual unit cost based on manufacturers' offer to Eircom. The cost included in the model takes into account delivery costs. In addition, the model includes respective take-up assumptions of end users requiring new modems over the DCF time period.
- **Order Handling:** These are the one-off start-up costs and ongoing costs associated with the Order Handling function by a new entrant. These costs are further inflated by a mark-up of 25% to take into account the likely costs of a new entrant (see paragraph 10.93).
- **Corporate overhead:** These are the one-off and ongoing costs corporate overhead costs.
- **Servers and collocation:** These are the total servers and collocation costs faced by a new entrant. Initial start-up costs and ongoing costs are taken into account.
- **Internet connectivity (peering charges);** This is the cost of internet connectivity faced by a new entrant. This cost is a common cost to all the standalone broadband products offered by a new entrant and is calculated based on an average bandwidth requirement. This is based on the forecast total number of subscribers of the new entrant. This total number of subscribers is then allocated to equivalent Eircom retail products based on the actual mix of Eircom retail end users on those products to determine the average bandwidth requirement.
- **Backhaul charges:** This is the cost of backhaul faced by a new entrant based on available wholesale offers from Eircom. This cost would be a common cost to all the standalone broadband products offered by a new entrant.

- **Wholesale connection:** These are the wholesale connection charges for new customers of the new entrant and reflect the prices published in the BARO.
- 10.95 Where unregulated services e.g., “Eir Sport” or IPTV are sold / offered for free with standalone broadband we propose that when such a combination of regulated and unregulated services arises it is considered a bundle, and the relevant assessment for the offer will be addressed in the upcoming Bundles consultation. Therefore, we do not address this issue any further in this Draft Decision.
- 10.96 In order to derive the total retail costs incurred by a new entrant the above cost categories can all be adjusted for scale and scope.
- 10.97 We propose to use an assumed 42 month customer lifetime in the margin squeeze model. This is used in the model to determine churn and calculate a rolling net number of subscribers per month. The level of churn determines the per unit recovery cost per subscriber. For example, a higher churn than new additions in a given period would mean a lower number of subscribers to recover the total retail cost. As such, it ensures that all incurred costs are recovered over the relevant period.
- 10.98 Separately, we requested data from operators on the actual customer lifetimes for various retail offers, both on a bundled basis and for broadband services sold on a standalone basis. In the context of the standalone retail margin squeeze tests in this Draft Decision we propose to continue to apply the 42 month customer lifetime. We intend to address this point further in the upcoming Bundles consultation. We will continue to keep this under review. The 42 month customer lifetime is consistent with the approach used in the existing NGA and CGA retail margin squeeze models and also in the proposed NGA and CGA retail margin squeeze models going forward (in the Regional WCA Market), as discussed in Chapter 11 of this document.
- 10.99 With respect to revenues which are taken into account in the model these are limited to rental and connection charges. No value added service revenue is included, as the model is based on a new entrant which is limited to an internet connection business. In addition, any additional revenue from excess usage is not taken into account.
- 10.100 Please also see Chapter 11, subsection 11.4.7, paragraphs 11.85-11.88 of this document for the proposed retail cost categories for the retail NGA and CGA margin squeeze tests in the Regional WCA Markets.

ComReg’s Preliminary View

10.101 ComReg is of the preliminary view that the proposed principles set out in the table below should apply in relation to the retail margin squeeze tests between the price of WLA services (both NGA and CGA services) provided in the footprint corresponding to the Urban WCA Market and the retail price of the retail service (both NGA and CGA based services) provided by way of WLA inputs in the footprint corresponding to the Urban WCA Market:

Principle	WLA retail margin squeeze test in footprint corresponding to Urban WCA Market
Operator cost base	EEO
Cost standard	ATC
Model type	DCF model
Portfolio or product-by-product	Portfolio (assessed separately for CGA services and NGA services)

Q. 23 Do you agree with ComReg’s preliminary views regarding the principles of the margin squeeze test between the price of WLA services in the footprint corresponding to the Urban WCA Market and retail services provided by way of WLA inputs in the footprint corresponding to the Urban WCA Market? Please provide reasons for your response

Chapter 11

11 Margin squeeze tests in the Regional WCA Market

11.1 Introduction

11.1 In the WLA / WCA Market Review we reached the preliminary view that a margin squeeze obligation should be imposed in the Regional WCA Market. In addition, we specified a number of margin squeeze tests that should apply in the Regional WCA Market.

11.2 In this chapter we further specify the principles that should apply to those margin squeeze tests in the Regional WCA Market:

- Wholesale margin squeeze test between End-to-End Bitstream and Bitstream (current generation and next generation Bitstream services) in the Regional WCA Market;
- Retail margin squeeze test between FTTC / FTTH based Bitstream provided in the Regional WCA Market and retail FTTC / FTTH based Bitstream offers;
- Retail margin squeeze between retail current generation broadband products and the price for current generation Bitstream services in Regional Area 1 of the Regional WCA Market;
- Retail margin squeeze between retail current generation broadband products and the price for current generation Bitstream services in Regional Area 2 of the Regional WCA Market.

11.3 Each of the proposed tests are discussed in detail later in this chapter.

11.2 Competition concerns in the WCA Market

11.4 As set out in Section 13 of the WLA / WCA Market Review, absent regulation in the Regional WCA Market, ComReg considers that Eircom has the potential to ultimately exploit end users by virtue of its proposed SMP position by setting excessive wholesale charges. This could raise the input costs for those OAOs that purchase Eircom's wholesale services. Given that such above cost wholesale prices may then be passed on by such OAOs to their retail end users via higher retail prices, it could ultimately have the potential to harm the

development of effective competition in the downstream market, potentially through the actual or effective exclusion of downstream competitors.

- 11.5 In addition, given Eircom's proposed SMP designation in the Regional WCA Market¹¹⁵, Eircom has the potential to leverage its market power into adjacent vertically or horizontally related markets through price and non-price means with the effect of foreclosing or excluding competitors in downstream retail and/or upstream wholesale markets. Eircom, as a vertically-integrated operator with SMP, has the incentive to use its market power in upstream markets to affect the competitive conditions in downstream wholesale and/or retail markets, in particular, through its ability to control the key inputs used by OAOs — which compete against Eircom in such markets. This could result in a distortion of or restriction in competition in these downstream markets, ultimately resulting in harm to end users, potentially in the form of higher prices, lower output/sales, reduced quality or reduced consumer choice.
- 11.6 As set out in the WLA / WCA Market Review at Section 13, ComReg considers that in the absence of an appropriate price control on Eircom obliging it to maintain such an economic space between its wholesale products (and between retail and wholesale products), by virtue of its control of the underlying access infrastructure and its presence at both wholesale and retail levels, Eircom would have the ability and incentive to price its wholesale access inputs in such a way as to dampen the competitive constraints it faces at the retail and downstream wholesale levels from OAOs that use Eircom's wholesale products. This ultimately could allow Eircom to extract supra-normal profits through either higher retail prices for end users or through maintaining a dominant share of the market.
- 11.7 Even if cost oriented prices for FTTC based NGA Bitstream and for current generation Bitstream and BMB services in the Regional WCA Market would prevent Eircom from increasing its wholesale charge, Eircom can, by reducing its retail price, ensure that certain OAOs may not be able to match the prevailing retail price and still earn sufficient margin to cover their own costs. In essence, OAOs may not be able to replicate Eircom's retail price and as a result Eircom could foreclose the markets. Any OAOs that had been forced out of the market(s) due to these price reductions would be inhibited from returning even when margins are restored if they feared that Eircom would respond by repeating the retail price reductions to squeeze margins again.
- 11.8 The remainder of this chapter is discussed under the following headings:
1. Wholesale margin squeeze test for End-to-end Bitstream;

¹¹⁵ Eircom had a market share in excess of 80% as at Q1 2016.

2. Retail margin squeeze test for NGA services; and
3. Retail margin squeeze test for current generation services.

11.3 Wholesale margin squeeze test for End-to-end Bitstream

11.3.1 Background:

- 11.9 Eircom currently provides a resale broadband product to OAOs, which ComReg has termed ‘End-to-end Bitstream’ or ‘White Label Bitstream’. This product allows an operator (a reseller) with no infrastructure or corresponding internet service provider (‘ISP’) service to offer a broadband service (and related services) at the retail level. The key underlying wholesale inputs of this End-to-end Bitstream service are currently regulated while the provision of the End-to-end Bitstream product is not.
- 11.10 Currently, Eircom is subject to a margin squeeze test between Eircom’s End-to-end Bitstream service and the associated WBA regulated components, as set out in the 2012 WBA Price Floors Decision for current generation and as set out in the 2013 NGA Decision for the next generation End-to-end service.
- 11.11 As set out in Section 13 of the WLA / WCA Market Review ComReg considers that Eircom’s provision of resale or End-to-end WCA, if not subject to appropriate regulatory controls for its regulated component parts, may conflict with the important regulatory goal of infrastructure investment — by Eircom offering resale or End-to-end Bitstream below the prices of its regulated WCA components (which could undermine / discourage investment in LLU / VUA and lead to discriminatory pricing of WCA services).
- 11.12 In order to incentivise operators to invest in more infrastructure based services, rather than reselling Eircom’s broadband (in the case of End-to-end Bitstream), it is important that the price of End-to-end Bitstream service (for current generation and next generation) is greater than the price of Bitstream (current generation and next generation) in the Regional WCA Market.
- 11.13 Therefore, in Section 13 of the WLA / WCA Market Review ComReg reached the preliminary view that Eircom should not cause a wholesale margin squeeze between the price of End-to-end Bitstream and the price for Bitstream in the Regional WCA Market, relating to both current generation and next generation End-to-end services. This would apply to all forms of NGA including FTTC and FTTH.

11.14 In this Draft Decision we further specify the proposed margin squeeze principles that should apply regarding the wholesale margin squeeze test for current generation End-to-end Bitstream and next generation End-to-end Bitstream.

11.15 The rest of this subsection is discussed under the following headings:

- Operator cost base;
- Appropriate cost standard; and
- Operator market share.

11.3.2 Operator cost base:

11.16 ComReg considers that there are three options for determining an operator cost base for the margin squeeze test, these include:

- Equally efficient operator ('EEO')
- Reasonably efficient operator ('REO')
- Similarly efficient operator ('SEO').

11.17 Please see Chapter 10, paragraphs 10.26 to 10.30 of this document for an explanation of each one.

11.18 To date, the End-to-end Bitstream test (both current generation and next generation) has been based on the SEO cost base. The SEO cost base is based on an operator who shares the same basic cost function as Eircom but does not yet enjoy the same economies of scale and scope as Eircom.

11.19 Economies of scale mean that the SEO has a lower volume than Eircom and as a result of this lower volume implies that its unit costs will be higher. Economies of scope mean that the SEO has a smaller number of products than Eircom over which to spread its overhead costs.

11.20 We consider that for now an EEO cost base does not seem appropriate for the wholesale margin squeeze test between the End-to-end service (for current generation and next generation) and Bitstream (both current and next generation), as there are no entrants that exhibit equal, or almost equal, economies of scale to Eircom, in the Regional WCA Market.

11.21 In principle, we consider that OAOs' costs should be used in the test. In practice, accurate verifiable OAO data has been difficult to obtain to date. Consequently, in the absence of reliable data from OAOs ComReg has estimated the appropriate costs by taking Eircom's costs as the starting point and adjusting these to reflect what costs an OAO would incur. ComReg believes

that there is no material difference between the value of cost inputs based on REO and SEO (i.e. the REO and SEO are both variants of the same test).

- 11.22 Going forward, we are considering the use of REO data, depending on reliable and robust costing data from OAOs. In the absence of such data, we intend to continue to use Eircom's costs adjusted to reflect lower level economies of scale / scope, known as SEO. We consider that this should be a good proxy for REO based estimates.
- 11.23 Given that the Regional WCA Market is not fully developed and other operators have not yet gained sufficient scale or scope the REO or SEO cost base (as a proxy for REO costs in the absence of REO data) is considered the appropriate basis for the wholesale margin squeeze test between End-to-end Next Generation Bitstream and NGA Bitstream and between the current generation End-to-end service and Bitstream. The REO or SEO cost base should promote competition and allow entrants to gain scale and it should ensure that any price charged by Eircom for its wholesale products does not foreclose efficient investment made or being made by OAOs in the context of the Regional WCA Market.
- 11.24 The REO costs (or SEO costs used as a proxy for REO in the absence of REO data) should ensure that competition by those operators who have made infrastructure investments in the Regional WCA Market are promoted and protected from possible margin / price squeeze, in this case from the End-to-end service (or White Label).
- 11.25 The SEO is consistent with the parameters of the replicability test set out in the 2013 Recommendation. In section (65) of the 2013 Recommendation the European Commission states that:
- "Where specific market circumstances apply, such as where market entry or expansion has been frustrated in the past, NRAs may **make adjustments for scale to the SMP operator's costs**, in order to ensure that economic replicability is a realistic prospect. In such cases, the reasonably efficient scale identified by the NRA should not go beyond that of a market structure with a sufficient number of qualifying operators to ensure effective competition."*
[emphasis added]
- 11.26 TERA also advocates the use of the REO / SEO approach, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.
- 11.27 ComReg is of the preliminary view that the REO cost base (or the SEO cost as a proxy for REO costs in the absence of REO cost data) is the appropriate standard to apply to the wholesale margin squeeze test for End-to-End services.

11.3.3 Appropriate cost standard:

11.28 The cost standard defines which portion of shared costs should be recovered through the price of a given service.

11.29 ComReg has considered the following options for the appropriate cost standard in the retail margin squeeze tests:

- Average variable cost ('AVC');
- Average avoidable cost ('AAC');
- LRAIC;
- LRAIC plus;
- Average total costs ('ATC').

11.30 The AVC standard is based on the variable cost of producing an additional unit of output. AVC does not include an allocation of fixed costs, which are the major cost component faced by telecom operators. AAC represent the short-run avoidable variable and incremental fixed costs of the additional sales of the product in question. This standard is distinct from AVC insofar as it includes fixed costs which would otherwise be avoided if the incremental output were no longer produced.

11.31 The remaining three options presented above all include a fixed cost allocation. LRAIC is the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run. This approach does not include an apportionment for common costs. 'LRAIC plus' is 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 joint and common costs. ATC is the average total cost and includes variable, fixed, joint and common costs based on historical cost data but with no adjustments for efficiencies. ATC requires an operator with SMP to price at levels that include appropriate amounts of variable, fixed and common costs.

11.32 We consider that the 'LRAIC plus' is more appropriate in the context of the wholesale margin squeeze test between End-to-end Bitstream and Bitstream. The 'LRAIC plus' promotes entry, takes account of all incremental costs of starting to provide a service and includes a mark-up for common costs. It is a forward looking approach which can reflect the cost structure characterised by both economies of scale and scope. It also promotes entry to the market which is consistent with ComReg's regulatory objectives. The 'LRAIC plus' costs are also the calculus faced by any operator when deciding to enter or expand in the market and can help encourage infrastructure investment.

11.33 Please also see the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.

11.34 ComReg is of the preliminary view that the 'LRAIC plus' cost standard should apply to the wholesale End-to-end margin squeeze test for the reasons set out in paragraph 11.32.

11.3.4 Operator market share:

11.35 ComReg proposes that there are three options to account for differences in economies of scale between Eircom and OAOs. These options are:

- 10% market share;
- 15% market share; and
- 25% market share.

11.36 In order to avoid inefficient entry to the market ComReg considers that a 25% market share appears reasonable for the Regional WCA Market but we welcome the views of industry. This is consistent with the market share assumed in the current End-to-end test for both current generation and next generation services.

11.37 Please also see paragraph 10.45 regarding the risk of too high a market share.

11.38 ComReg is of the preliminary view that a hypothetical operator with a market share of 25% may be the relevant volume base to apply in context of the End-to-end wholesale margin squeeze test.

ComReg's Preliminary View

11.39 ComReg is of the preliminary view that the margin squeeze test between End-to-end Bitstream and the associated WCA regulated components (or Bitstream) for both current generation and next generation services should be based on the following:

- REO cost base (or the SEO costs as a proxy for REO in the absence of REO cost data);
- 'LRAIC plus' cost standard; and
- An operator with an assumed retail broadband market share of 25%.

Q. 24 Do you agree with ComReg's preliminary views regarding the margin squeeze principles for the wholesale End-to-end margin squeeze tests for both current generation and next generation? Please provide reasons for your response.

11.4 Retail margin squeeze test for NGA services

11.4.1 Background:

11.40 As set out in Section 13 of the WLA / WCA Market Review, given the uncertainties regarding the take-up and costs associated with FTTH ComReg reached the preliminary view that we should maintain the margin squeeze obligation for FTTH based Bitstream as a control to prevent excessive pricing. A margin squeeze test is more practical where it is difficult to determine an accurate estimation of costs, especially given the sensitivity of price to forecasted volume of users. A margin squeeze obligation also gives the regulated entity more pricing flexibility which is important to maintain investment incentives for the rollout of FTTH infrastructure. ComReg also considered that such an obligation is also justified because of concerns about foreclosure at the retail level.

11.41 ComReg considers that a retail margin squeeze obligation for NGA Bitstream services (both FTTC and FTTH) is appropriate in the Regional WCA Market in order to ensure that there is no foreclosure of operators at a retail level, in the context of FTTH and/or FTTC services. Eircom has an incentive and ability to set retail prices at a level relative to its own wholesale prices that could foreclose competition. This could result in market foreclosure / substantial lessening of competition in the retail broadband market which would cause consumer harm. See also paragraphs 11.4 and 11.5.

11.42 In Section 13 of the WLA / WCA Market Review ComReg reached the preliminary view that the retail margin squeeze tests in the context of NGA should be as follows:

- (a) Eircom should ensure that it does not cause a retail margin squeeze between the price for FTTC based retail products and FTTC based Bitstream in the Regional WCA Market; and
- (b) Eircom should ensure that it does not cause a retail margin squeeze between the price for FTTH based retail products and FTTH based Bitstream in the Regional WCA Market.

11.43 In this Draft Decision we further specify the proposed margin squeeze principles that should apply regarding the retail margin squeeze test for NGA services (FTTC and FTTH).

11.44 The rest of this subsection is discussed under the following headings:

- Operator cost base;
- Appropriate cost standard;

- Operator market share;
- Portfolio or product-by-product analysis;
- Appropriate model; and
- Appropriate retail costs.

11.4.2 Operator cost base:

11.45 ComReg considers that there are three options for determining an operator cost base for the margin squeeze test, these include:

- Equally efficient operator ('EEO')
- Reasonably efficient operator ('REO')
- Similarly efficient operator ('SEO').

11.46 Please see Chapter 10, paragraphs 10.26 to 10.30 of this document for an explanation of each one.

11.47 Given that the Regional WCA Market is not fully developed and other operators have not yet gained sufficient scale or scope we consider that the REO or SEO approach is an appropriate cost base. As set out at paragraphs 11.21-11.22, we are considering the use of REO data, going forward, depending on reliable and robust costing data from OAOs. However, in the absence of reliable and robust data from OAOs (REO costs), we propose to estimate the appropriate costs by taking Eircom's costs as the starting point and adjusting these to reflect what costs an OAO would incur. We consider that this approach should be a reasonable proxy for REO costs.

11.48 The REO costs (or SEO costs as a proxy for REO) should promote competition and allow entrants to gain scale given that it recognises that other operators do not have the same economies of scale / scope as Eircom.

11.49 While there has been limited LLU take-up to date, firms might reach efficient scale in the future by means of VUA, in the Regional WCA Market. At this stage no communications operator in the Regional WCA Market can match Eircom's scale and certainly not in a fixed line context. However, we consider that there may be certain retail cost categories e.g. advertising costs, that may differ in this regard and we propose to continue to use the EEO cost base for certain retail costs e.g., advertising costs.

11.50 ComReg considers that the following retail costs should be based on the EEO cost base:

- Advertising costs;
- Billing costs; and
- Product management costs.

11.51 ComReg considers that there are large operators in Ireland with an international presence who can take advantage of economies of scale and scope between their operations in Ireland and other countries in which they operate. ComReg considers that the costs listed at paragraph 11.50 are most susceptible to such scale / scope advantages especially in the context of bundle offers (with fixed voice, mobile voice, broadband, IPTV, etc.) which are more often sold in the market. This impacts both advertising costs but also product management costs since the latter can be spread over a wide scope of products. Billing costs are mainly variable costs and therefore EEO costs and REO/SEO costs are similar.

11.52 Therefore, we propose to apply a combined REO cost base (or the SEO cost base as a proxy for REO cost data in the absence of REO data) and the EEO cost base for the retail margin squeeze for FTTH and FTTC based NGA services. This proposed approach is consistent with the existing retail margin squeeze tests both in the context of NGA and current generation services. We consider that a retail margin squeeze test based entirely on EEO costs may not be appropriate at this time as there are currently no entrants in the Regional WCA Market that exhibits equal, or almost equal, economies of scale to Eircom. However, the EEO may be an option at some point in the future where OAOs have reached a greater scale on the relevant platforms. We will continue to keep this under review.

11.53 Our approach is also consistent with the parameters of the replicability test set out in the 2013 Recommendation. At section (64) of the 2013 Recommendation the European Commission states that:

“...lack of economic replicability can be demonstrated by showing that the SMP operator’s own downstream retail arm could not trade profitably on the basis of the upstream price charged to its competitors by the upstream operating arm of the SMP operator (‘equally efficient operator’ (EEO) test). The use of the EEO standard enables NRAs to support the SMP operators’ investments in NGA networks and provides incentives for innovation in NGA-based services.”

11.54 Please see paragraph 11.25 above in relation to the use of SEO costs with reference to the 2013 Recommendation. TERA also advocates the use of a combined EEO and REO / SEO approach for the retail NGA margin squeeze tests, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.

11.55 ComReg is of the preliminary view that the combined REO cost base (or the SEO cost base as a proxy for REO in the absence of REO cost data) and EEO cost base is appropriate for the retail margin squeeze tests associated with FTTC and FTTH NGA Bitstream services in the Regional WCA Market.

11.4.3 Appropriate cost standard:

11.56 The options for the appropriate cost standard to apply in the retail margin squeeze tests include the following:

- (i) Average Variable Cost ('AVC')
- (ii) Average Avoidable Cost ('AAC')
- (iii) LRAIC
- (iv) LRAIC plus
- (v) Average Total Cost ('ATC').

11.57 Please see paragraphs 11.28-11.31 for a discussion on the options above.

11.58 The existing retail margin squeeze tests for NGA are based on the ATC approach, as well as the retail tests for current generation services.

11.59 ATC requires an operator with SMP to price at levels that include appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. For example, an operator will consider the current and future potential competitive environment (including price) when formulating its business plan when deciding to enter or expand in the market.

11.60 Critically, ComReg believes that the decision to enter, and remain in, the market depends on the expectation that fixed and common costs will be recovered; not only the additional avoidable costs incurred by the SMP operator. The reasoning behind this is that an entrant would enter a market only if it considered that it would be profitable to do so, taking into account all the costs that it would have to incur in order to enter the market and sustain a competitive position i.e., the fixed, common, joint and variable costs. Cost measures such as AAC do not ensure this as the total full costs of an operator are not covered.

- 11.61 Both LRAIC+ and ATC provide long-term investment signals for the construction of alternative infrastructure as they both include an apportionment of joint and common costs. While section (67) of the 2013 Recommendation suggests the LRAIC+ approach: "...NRAs should apply a LRIC+ model..." we consider that the difference between ATC and LRAIC+ in the context of the retail costs is generally not material and therefore we propose to continue to use the ATC approach for regulatory consistency. In addition, we currently use Eircom's accounts to derive the retail costs, which is more akin to the ATC approach.
- 11.62 Please also see the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.
- 11.63 ComReg is of the preliminary view that we should continue to use the ATC approach to determine the appropriate level of retail costs associated with the retail margin squeeze tests for FTTH and FTTC based Bitstream services.

11.4.4 Operator market share:

- 11.64 There are three possible options to adjust the retail margin squeeze test to account for differences in economies of scale between Eircom and the OAOs. These options are:
- 10% market share;
 - 15% market share;
 - 25% market share.
- 11.65 A 25% market share has been applied to date in the context of NGA and current generation retail margin squeeze tests. The 25% retail broadband market share does not correspond to the market share of any operator today but to the market share of an efficient operator in the medium term. If market shares are set too low, there could be a risk of not incentivising operators to grow sufficiently. Given that we wish to avoid inefficient entry ComReg is of the preliminary view that a 25% retail broadband market share should be applied when adopting the REO/SEO cost base but we will keep this under review.
- 11.66 The risk of having too high market share assumption would be to create a duopoly situation in this segment of the market. In addition, a 25% market share is consistent with a market made up of 4 operators with symmetric market shares (100%/4) or with a market made of 3 operators with asymmetric market shares. While a 33% market share is only consistent with a duopoly situation with asymmetric market share or a market made up of 3 operators with symmetric market shares (100%/3), the latter is less likely in reality given existing market share asymmetries. As a consequence, a market share of 25%

is more consistent with the objective of incentivising infrastructure based competition with more than 2 operators.

11.4.5 Portfolio or product-by-product analysis:

11.67 The retail margin squeeze test can be conducted either on:

- A single product offered by the SMP operator; or
- A number of products as a whole i.e., a portfolio of products.

11.68 Please see paragraphs 10.74 to 10.77 for a discussion on the various options above.

11.69 There are sound economic reasons to allow some efficient price discrimination and hence cost recovery from a broader range of services i.e., a portfolio approach. This is further reinforced in the NGA environment where greater bandwidth enables a wider range of retail offers.

11.70 The portfolio test allows Eircom some flexibility to price above or below the retail and wholesale costs on certain retail products so long as it ensures that the weighted average total retail and wholesale costs are covered by the retail revenues.

11.71 For the portfolio approach, entrants are also likely to offer a portfolio of services and could choose to compete with Eircom across a similar product portfolio. We recognise that the main benefit of conducting a margin squeeze test across a portfolio of products is that it offers the operator greater flexibility in designing its offerings, and consequently could lead to greater innovation in the market.

11.72 While the 2013 Recommendation states that “*The NRA need not run the test for each and every new retail offer but only in relation to **flagship products** to be identified by the NRA*”¹¹⁶ [**emphasis added**], we propose to continue with the portfolio approach for the retail margin squeeze test for NGA services in the Regional WCA Market.

11.73 ComReg considers that the portfolio approach is reasonable given that Eircom is facing some retail competition from other operators in the Regional WCA Market, particularly in Regional Area 1. The portfolio approach would therefore give Eircom some pricing flexibility in this area. This approach also ensures regulatory consistency with the existing portfolio approach applied in the 2013 NGA Decision and in the 2013 Bundles Decision.

¹¹⁶ Section (66) of the 2013 Recommendation.

11.74 TERA also advocates the use of the portfolio approach regarding retail NGA services, as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.

11.75 ComReg is of the preliminary view that a portfolio approach should be used for the retail margin squeeze test for FTTH and separately for FTTC based NGA services in the Regional WCA Market.

11.4.6 Appropriate model:

11.76 There are two model options in the context of the retail margin squeeze tests:

- Discounted cash-flow ('DCF') model (also known as a dynamic model); or
- Static model.

11.77 A DCF (or dynamic) model estimates all future cash flows of the offer under consideration and discounts them to arrive at their present value. A static model is an analysis over one period, generally an accounting year.

11.78 A DCF model has been used to date, both in the context of the existing NGA and current generation retail margin squeeze tests.

11.79 The DCF model is particularly relevant for the NGA network given the uncertainty of demand for NGA products, the increasing demand over time and the need to make significant investments. As the penetration rates for FTTH and FTTC based NGA services can change significantly over time, a static approach does not take these dynamics into account, so the per line price would be too high during the initial years of deployment.

11.80 In addition, the 2013 Recommendation advocates the DCF model, stating that the profitability should be assessed "...on the basis of a dynamic multi-period analysis, such as the discounted cash flow (DCF) approach."¹¹⁷

11.81 TERA also advocate the use of the DCF approach as set out in the TERA Report, Chapter 5, subsection 5.2 at Annex 6 of this Draft Decision.

11.82 The proposed discount factor applied in the model is the WACC. This may be applied on a pre-tax or post-tax basis. Eircom currently applies a pre-tax WACC of 8.18%, as per ComReg Decision D15/14.

11.83 Similar to the existing DCF model, ComReg proposes to apply the DCF analysis for five years and to include a further three years where the costs and revenues remain stable to account for the terminal value.

¹¹⁷ See Annex II, part 5 of the 2013 Recommendation.

11.84 ComReg is of the preliminary view that the DCF approach remains appropriate.

11.4.7 Appropriate retail costs

11.85 With regard to the DCF model, we propose to carry forward the current structure and underlying information contained in the existing NGA margin squeeze model in order to apply the retail margin squeeze tests in the Regional WCA Market for NGA services.

11.86 In summary, as a starting point, the DCF approach in the NGA margin squeeze model uses Eircom's costs — both historic which are based on Eircom's audited Regulated Accounts and Eircom's forecast of those costs — as a data source. These costs both historic and forecast are then adjusted to reflect the likely costs that a new retail broadband market entrant would likely incur.

11.87 As such, the DCF approach includes one-off start-up costs, ongoing fixed and variable operating costs including capital costs and a terminal value. In addition, a number of costs are further inflated by an overhead mark-up of 25% to create an additional margin buffer to reflect the likely new retail broadband market entrant mark-up of common costs. The cost categories which incur this additional mark-up are: Sales; Product Development; Help Desk; and Order Handling.

11.88 The cost categories used in the existing NGA margin squeeze model are set out below. We propose to continue to use the retail cost categories set out below for the forthcoming NGA retail margin squeeze tests.

- **Sales costs:** These are the one-off start-up costs and ongoing customer acquisition costs faced by a new entrant to attain new residential and business end users. These costs are further inflated by a mark-up of 25% to take into account the likely higher costs of a new entrant (see paragraph 11.87).
- **Marketing / Advertising:** These are the one-off and ongoing costs including campaign costs and are divided into initial set-up costs and promotions.
- **Product management & development:** These are the one-off start-up costs and ongoing costs associated with the product management & development function of a new entrant. These costs take into account new product developments over an ongoing product refreshment cycle. These costs are further inflated by a mark-up of 25% to take into account the likely higher costs of a new entrant (see paragraph 11.87).
- **Accommodation:** These are the one-off start-up costs and ongoing costs associated with the Accommodation of a new entrant.

- **Help Desk:** These are the one-off start-up costs and ongoing costs associated with the Help Desk function of a new entrant. These costs reflect a higher cost during the initial two years after start-up and followed by a lower ongoing cost per subscriber. All Help Desk costs are further inflated by a mark-up of 25% to take into account the likely higher costs of a new entrant (see paragraph 11.87).
- **Billing:** These are the one-off start up costs and ongoing costs per subscriber associated with the Billing function of a new entrant. Billing costs also include a credit management cost which is based on a percentage of revenue.
- **Modems:** This category takes into account the actual unit cost based on manufacturers' offer to Eircom. The cost included in the model takes into account delivery costs. In addition, the model includes respective take-up assumptions of end users requiring new modems over the DCF time period.
- **Order Handling:** These are the one-off start-up costs and ongoing costs associated with the Order Handling function by a new entrant. These costs are further inflated by a mark-up of 25% to take into account the likely costs of a new entrant (see paragraph 11.87).
- **Corporate overhead:** These are the one-off and ongoing costs corporate overhead costs.
- **Servers and collocation:** These are the total servers and collocation costs faced by a new entrant. Initial start-up costs and ongoing costs are taken into account.
- **Internet connectivity (peering charges);** This is the cost of internet connectivity faced by a new entrant. This cost is a common cost to all the standalone broadband products offered by a new entrant and is calculated based on an average bandwidth requirement. This is based on the forecast total number of subscribers of the new entrant. This total number of subscribers is then allocated to equivalent Eircom retail products based on the actual mix of Eircom retail end users on those products to determine the average bandwidth requirement.
- **Backhaul charges:** This is the cost of backhaul faced by a new entrant based on available wholesale offers from Eircom. This cost would be a common cost to all the standalone broadband products offered by a new entrant.

- **Wholesale connection:** These are the wholesale connection charges for new customers of the new entrant and reflect the prices published in the BARO.

11.89 Where unregulated services e.g., “Eir Sport” or IPTV are sold / offered for free with standalone broadband we propose that when such a combination of regulated and unregulated services arises it is considered a bundle, and the relevant assessment for the offer will be addressed in the upcoming Bundles consultation. Therefore, we do not address this issue any further in this Draft Decision.

11.90 In order to derive the total retail costs incurred by a new entrant the above cost categories can all be adjusted for scale and scope.

11.91 The existing NGA margin squeeze model uses an assumed customer lifetime of 42 months. This is used in the model to determine churn and calculate a rolling net number of subscribers per month. The level of churn determines the per unit recovery cost per subscriber. For example, a higher churn than new additions in a given period would mean a lower number of subscribers to recover the total retail cost. As such, it ensures that all incurred costs are recovered over the relevant period.

11.92 While we requested data from operators on the customer lifetimes for various offers (see paragraph 10.98), we propose to continue to apply the 42 month customer lifetime for the retail margin squeeze tests for standalone broadband but we will continue to keep this under review.

11.93 With respect to revenues which are taken into account in the model these are limited to rental and connection charges. No value added service revenue is included, as the model is based on a new entrant which is limited to an internet connection business. In addition, any additional revenue from excess usage is not taken into account.

ComReg’s Preliminary View:

11.94 ComReg is of the preliminary view that the proposed principles in the table below should apply regarding the NGA retail margin squeeze tests (FTTC and FTTH based NGA services) in the Regional WCA Market.

Principle	Retail margin squeeze tests in Regional WCA Market
Operator cost base	REO ¹¹⁸ and EEO costs

¹¹⁸ Or the SEO cost base as a proxy for REO costs in the absence of REO cost data.

Operator share	market	25% (on REO costs only)
Cost standard		ATC
Model type		DCF model
Portfolio or product-by-product		Portfolio

Q. 25 Do you agree with ComReg’s preliminary view regarding the margin squeeze principles for the retail margin squeeze test for NGA services in the Regional WCA Market? Please provide reasons for your response

11.5 Retail margin squeeze test for current generation services

11.5.1 Background:

11.95 Currently, Eircom is subject to the obligation not to cause a retail margin squeeze for current generation Bitstream services¹¹⁹. As set out in Section 13 of the WLA / WCA Market Review ComReg considers that a retail margin squeeze obligation for CGA services continues to be appropriate, proportionate and justified, in the Regional WCA Market. Please also see paragraphs 11.4 and 11.5.

11.96 In the Regional WCA Market and absent regulation, Eircom has a 32% retail broadband market share while Virgin Media has approximately 3%¹²⁰ retail broadband market share and the remaining market share (of circa 3%¹²¹) relates to BT, Vodafone and SIRO. The retail margin squeeze test should protect operators that rely on LLU and Line Share wholesale inputs. This is particularly important in Regional Area 1 where unbundling activity may take place.

¹¹⁹ Please see Chapter 7 of the 2014 WBA Pricing Decision for further details.

¹²⁰ Virgin Media has a market share of less than 10%

¹²¹ The remaining market share is less than 10%.

11.97 Separately in Regional Area 2, ComReg reached the preliminary view in Section 13 of the WLA / WCA Market Review that a retail margin squeeze obligation remained appropriate in this region. There are little or no alternative wholesale providers in Regional Area 2. In this case Eircom may attempt to foreclose competition in the retail broadband market as, given its dominant position in the Regional WCA Market it is likely to have the incentive and ability to do so. In addition, there are a number of smaller operators in Regional Area 2. Given their lack of scale these are vulnerable to exclusionary behaviour given that they do not share Eircom's economies of scale and that they have no realistic alternative means of provision.

11.98 In Section 13 of the WLA / WCA Market Review ComReg reached the preliminary view that the retail margin squeeze tests in the context of current generation services should be as follows:

- (a) Eircom should not cause a retail margin squeeze between the price for retail current generation broadband and the price for wholesale Bitstream services in Regional Area 1 of the Regional WCA Market; and
- (b) Eircom should not cause a retail margin squeeze between the price for retail current generation broadband and the price for wholesale Bitstream services in Regional Area 2 of the Regional WCA Market.

11.99 In this Draft Decision we further specify the proposed margin squeeze principles that should apply regarding the retail margin squeeze tests for current generation Bitstream in Regional Area 1 and Regional Area 2 of the Regional WCA Market.

11.100 The rest of this subsection is discussed under the following headings:

- Operator cost base;
- Appropriate cost standard;
- Operator market share;
- Portfolio or product-by-product analysis;
- Appropriate model;
- Appropriate retail costs.

11.5.2 Operator cost base:

11.101 ComReg considers that there are three options for determining an operator cost base for the margin squeeze test, these include:

- Equally efficient operator ('EEO')
- Reasonably efficient operator ('REO')
- Similarly efficient operator ('SEO').

11.102 Please see Chapter 10, paragraphs 10.26 to 10.30 of this document for an explanation of each one.

11.103 Given that the Regional WCA Market is not fully developed and other operators have not yet gained sufficient scale or scope we consider that the REO or SEO approach is an appropriate option. As set out at paragraphs 11.21-11.22, we are considering the use of REO data, going forward, depending on reliable and robust costing data from OAOs. However, in the absence of reliable and robust data from OAOs (REO costs), we propose to estimate the appropriate costs by taking Eircom's costs as the starting point and adjusting these to reflect what costs an OAO would incur. We consider that this approach should be a reasonable proxy for REO costs.

11.104 The REO costs (or SEO costs as a proxy for REO) should promote competition and allow entrants to gain scale given that it recognises that other operators do not have the same economies of scale / scope as Eircom.

11.105 In the context of the Regional WCA Market the REO / SEO cost base may be appropriate given that there is a number of smaller operators, especially in Regional Area 2 that are vulnerable to exclusionary behaviour given that they do not share Eircom's economies of scale and that they have no realistic alternative means of provision.

11.106 However, there are some large operators in Regional Area 1 using Eircom's network (Vodafone, Sky) with an international presence who can take advantage of economies of scale and scope between their operations in Ireland and other countries in which they operate. ComReg considers that there are some costs that are most susceptible to such scale / scope advantages especially in the context of bundle offers (with fixed voice, mobile voice, broadband, IPTV, etc.) which are more often sold in the Regional Area 1. This impacts both advertising costs but also product management costs since the latter can be spread over a wide scope of products. Billing costs are mainly variable costs and therefore EEO costs and REO/SEO costs are similar.

11.107 ComReg proposes that the following retail costs for current generation Bitstream should be based on EEO costs:

- Marketing / Advertising costs;
- Billing costs;

- Product management costs.

11.108 Therefore, we propose to apply a combined REO cost base (or the SEO cost as a proxy for REO costs in the absence of REO cost data) and EEO cost base in Regional Area 1. This approach is consistent with the existing retail margin squeeze test for current generation services in the LEA and for the retail test for NGA services. We consider that a retail margin squeeze test based entirely on EEO costs may not be appropriate at this time as there are currently no entrants in the Regional WCA Market that exhibits equal, or almost equal, economies of scale to Eircom. However, the EEO may be an option at some point in the future where OAOs have reached a greater scale on the relevant platforms. We consider that we should monitor retail broadband market share changes over the price control period and when there is evidence to show that operators have gained scale, a move to an EEO approach should be considered in Regional Area 1.

11.109 In Regional Area 2, ComReg considers that the retail margin squeeze test should be based on a REO cost base (or the SEO cost base as a proxy for REO costs in the absence of REO cost data). This area remains less competitive in terms of retail broadband and there is no prospect of infrastructure competition developing in these exchanges over the proposed price control period and therefore we consider that a REO / SEO cost base remains appropriate. The REO / SEO cost base also reflects the presence of a number of smaller operators in Regional Area 2, including IFA Telecom, Magnet, and Digiweb. These smaller operators do not enjoy the same scale and scope economies as Eircom and a REO / SEO cost base reflects this smaller scale. In addition, the REO / SEO allows the smaller operators to increase their end user base and to encourage competition in Regional Area 2 by allowing sufficient margin (by way of REO / SEO costs) to these operators.

11.110 The SEO cost base is consistent with the existing retail margin squeeze test for current generation services Outside the LEA, as set out in the 2014 WBA Pricing Decision. In addition, the SEO cost base is consistent with Annex II part (i) of the 2013 Recommendation, as discussed at paragraph 11.25.

11.111 Jacobs also recommends the continued use of the combined EEO and REO/SEO for the retail current generation Bitstream margin squeeze test in Regional Area 1 and the REO / SEO cost base for the retail current generation Bitstream margin squeeze test in Regional Area 2, as set out in Chapter 6 of the Jacobs Report at Annex 7 of this Draft Decision.

11.112 ComReg is of the preliminary view that combined REO cost base (or the SEO cost as a proxy for REO costs in the absence of REO cost data) and EEO cost base should apply to the retail current generation Bitstream margin squeeze test in Regional Area 1. The REO cost base (or the SEO cost as a proxy for REO costs in the absence of REO cost data) should apply to the retail current generation Bitstream margin squeeze test in Regional Area 2.

11.5.3 Appropriate cost standard:

11.113 The options for the appropriate cost standard to apply in the retail margin squeeze tests include the following:

- (i) Average Variable Cost ('AVC');
- (ii) Average Avoidable Cost ('AAC');
- (iii) LRAIC;
- (iv) LRAIC plus;
- (v) Average Total Cost ('ATC').

11.114 Please see paragraphs 11.57 - 11.60 for a discussion of each option.

11.115 We consider that to apply an AAC cost rule in an ex-ante context could lead to sub-optimal entry conditions with little entry occurring. This would be to the detriment of competition and, in turn, end users. In addition, the avoidable costs is the relevant measure when assessing whether there is concerns around future exclusion or exit of current efficient competitors from the retail broadband market.

11.116 The current retail margin squeeze tests for current generation services are based on the ATC approach, as well as the current retail NGA test. We are proposing to continue with ATC in the context of current generation services.

11.117 Both LRAIC+ and ATC provide long-term investment signals for the construction of alternative infrastructure as they both include an apportionment of joint and common costs. While section (67) of the 2013 Recommendation suggests the LRAIC+ approach: "...NRAs should apply a LRIC+ model..." we consider that the difference between ATC and LRAIC+ in the context of the retail costs is generally not material and therefore we propose to continue to use the ATC approach for regulatory consistency. In addition, we currently use Eircom's accounts to derive these costs, which is more akin to the ATC approach.

11.118 Jacobs also recommends the continued use of the ATC approach for the retail costs in the retail margin squeeze tests for current generation Bitstream in Regional Area 1 and in Regional Area 2, as set out in Chapter 6 of the Jacobs Report at Annex 7 of this Draft Decision.

11.119 ComReg is of the preliminary view that we should continue to use the ATC approach for the retail margin squeeze tests for current generation Bitstream services in Regional Area 1 and in Regional Area 2.

11.5.4 Operator market share:

11.120 As set out at paragraph 11.64, there are three possible options to adjust the retail margin squeeze test to account for differences in economies of scale between Eircom and the OAOs. These options are:

- 10% market share;
- 15% market share;
- 25% market share.

11.121 The risk of having too high a market share assumption would be to create a duopoly situation in this segment of the market. In addition, a 25% market share is consistent with a market made up of 4 operators with symmetric market shares (100%/4) or with a market made of 3 operators with asymmetric market shares. While a 33% market share is only consistent with a duopoly situation with asymmetric market share or a market made up of 3 operators with symmetric market shares (100%/3), the latter is less likely in reality given existing market share asymmetries. As a consequence, a market share of 25% is more consistent with the objective of incentivising infrastructure based competition with more than 2 operators

11.122 ComReg is of the preliminary view that a 25% retail broadband market share should be applied when adopting the REO / SEO cost base. This is consistent with the existing market share assumptions in the 2014 WBA Pricing Decision.

11.5.5 Portfolio or product-by-product assessment:

11.123 The retail margin squeeze test can be conducted either on:

- A single product offered by the SMP operator; or
- A number of products as a whole i.e., a portfolio of products.

11.124 Please see paragraphs 11.68 to 11.69 for a discussion on the portfolio approach and the product-by-product approach.

- 11.125 ComReg proposes that the retail margin squeeze test for current generation services in Regional Area 1 should be based on a portfolio approach where Eircom should recover the ATC costs for standalone current generation broadband services in aggregate. ComReg considers that the portfolio approach is reasonable given that Eircom is facing some retail competition from other operators in Regional Area 1. This approach also ensures regulatory consistency given that the portfolio approach in the existing 2013 Bundles Decision and in the 2013 NGA Decision.
- 11.126 Therefore, in Regional Area 1, Eircom should ensure that the average of Eircom's retail revenues for its Retail current generation Broadband products recovers the average total retail and wholesale costs. Eircom would have some flexibility to price above or below the retail costs on certain retail current generation broadband products but it should ensure that the weighted average total retail and wholesale costs are covered by the retail current generation broadband revenues.
- 11.127 ComReg considers that in Regional Area 2 the product-by-product approach should be adopted. This reflects the current lower level of retail competition in this area, the current absence of alternative infrastructure providers and the fact that Eircom's NGA network is not available in these exchanges. Given that it is likely that there is more than one retail offer supported by a single wholesale offer in Regional Area 2, it is reasonable for Eircom to assess the weighted average retail price against the costs associated with the wholesale offering. However, unlike the portfolio approach described above, it is proposed that Eircom would pass the margin squeeze test on a product-by-product basis where each offer would have to pass its own ATC. Therefore, Eircom would not have the flexibility to price above or below the retail costs on certain retail current generation Bitstream products in Regional Area 2.
- 11.128 This approach ensures regulatory consistency with the existing approach (in the 2014 WBA Pricing Decision) and also with the approach taken in the context of Bundles in the 2013 Bundles Decision. ComReg considers that in Regional Area 2 the prospective competitive conditions are not as evident as those in Regional Area 1. The majority of competitors in Regional Area 2 rely on Bitstream from Eircom. As such, the added flexibility (of a portfolio approach) is not appropriate in Regional Area 2.
- 11.129 Jacobs also recommends a portfolio assessment for the retail current generation Bitstream margin squeeze test in Regional Area 1 and a product-by-product assessment for the retail current generation Bitstream margin squeeze test in Regional Area 2, as set out in Chapter 6 of the Jacobs Report at Annex 7 of this Draft Decision.

11.130 ComReg is of the preliminary view that the portfolio assessment should be used in relation to the retail margin squeeze test for current generation Bitstream in Regional Area 1 while the product-by-product assessment should be used for the retail margin squeeze test for current generation Bitstream in Regional Area 2.

11.5.6 Appropriate model:

11.131 There are two model options in the context of the retail margin squeeze tests:

- Discounted cash-flow ('DCF') model (also known as a dynamic model); or
- Static model.

11.132 Please see paragraph 11.77 for the differences between the two options.

11.133 A DCF model has been used to date, both in the context of standalone NGA and current generation retail margin squeeze tests.

11.134 As set out at paragraph 11.80, in the 2013 Recommendation the European Commission advocates the use of the DCF approach.

11.135 Jacobs also recommends the continued use of the DCF approach, as set out in Chapter 6 of the Jacobs Report at Annex 7 of this Draft Decision.

11.136 ComReg is of the preliminary view that the DCF approach remains appropriate.

11.5.7 Appropriate retail costs:

11.137 Please see the proposed DCF approach in relation to retail costs set out in paragraphs 11.85 to 11.93.

11.138 We propose to continue with the approach in the current DCF model, as discussed at paragraphs 11.85 to 11.93, regarding the retail costs for current generation retail services.

ComReg's Preliminary View:

11.139 ComReg is of the preliminary view that the principles set out in the table below should apply to the retail margin squeeze test for current generation Bitstream in Regional Area 1 and in Regional Area 2 of the Regional WCA Market.

Principle	Retail margin squeeze test in Regional Area 1	Retail margin squeeze test in Regional Area 2
Operator cost base	REO ¹²² and EEO costs	REO ¹²³ costs
Operator market share	25% (on REO costs only)	25%
Cost standard	ATC	ATC
Model type	DCF model	DCF model
Portfolio or product-by-product	Portfolio	Product-by-product

Q. 26 Do you agree with ComReg’s preliminary view on the margin squeeze principles that should apply to the retail margin squeeze test for current generation services in Regional Area 1 and Regional Area 2 of the Regional WCA Market? Please provide reasons for your response.

¹²² Or the SEO cost base as a proxy for REO in the absence of REO cost data.

¹²³ Ibid.

Chapter 12

12 Other Regulatory Measures

12.1 Introduction

12.1 There are a number of other regulatory related issues that ComReg has considered as part of this Draft Decision, which are discussed under the following headings:

1. Price control period;
2. Pre-notification and compliance obligations for WLA and WCA services;
3. Regulatory approval mechanism to allow Eircom to reduce prices in certain geographic areas.

12.2 Each one is discussed in turn below.

12.2 Price control period

12.3 ComReg considers that the price control period should be for at least three years from the date of ComReg's decision but in any event it should remain in place until further notice by ComReg.

12.4 The proposed three year price control period should be from 2017/18 to 2019/20.

12.5 The proposed price control period should provide sufficient time for the development of the market for wholesale products (particularly further deployment of NGA services) and infrastructure investment by alternative operators. The three year period should also provide alternative platform providers with a degree of certainty in relation to the market development of wholesale products.

12.6 ComReg proposes that on an annual basis Eircom should review the inputs, costs and assumptions of the NGN Core Model and the NGA Cost Model. The annual review is an opportunity to ensure that any exceptional changes in the model(s) are considered.

12.7 If, as a result of this review, it is clear that there are material differences then Eircom should bring this to the attention of ComReg. ComReg may then assess these material differences and consider how any issues arising might be addressed going forward.

- 12.8 ComReg considers that the annual review should provide the market with reasonable price certainty and stability. ComReg considers that the annual review should not be a static point in time review, but rather where issues are apparent, a more detailed dynamic assessment may be necessary where we may need to assess historic data and forecasted data on costs and volumes. This is important so that any one-off reductions or increases to historic costs or volumes do not give rise to distortions in the market. The possibility of a consultation with industry may arise if material changes are required or if exceptional circumstances arise.

ComReg's Preliminary View:

- 12.9 The price control period should be for at least three years from the date of ComReg's decision but in any event it should remain in place until further notice by ComReg.
- 12.10 Eircom should review the inputs, costs and assumptions of the NGN Core Model and the NGA Cost Model on an annual basis. If material changes are noted, Eircom should submit them to ComReg for further consideration.

Q. 27 Do you agree with ComReg's preliminary view that the price control period should be for three years but should remain in place any further notice by ComReg and that Eircom should review the models annually for material / exceptional changes? Please provide reasons for your response.

12.3 Pre-notification and compliance obligations for WLA and WCA services

- 12.11 The notification of price changes to ComReg and industry are essential to the proper functioning of the wholesale market and are necessary in order to protect competition.
- 12.12 In the WLA / WCA Market Review, the pre-notification obligations for price changes in the WLA Market and the Regional WCA Market are as follows:
- (a) For a price increase Eircom should make publicly available and publish on its publicly available wholesale website at least three (3) months in advance of such changes coming into effect, unless otherwise determined by ComReg. Eircom should notify ComReg in writing with the information to be published at least one (1) month in advance of any such publication taking place, unless otherwise agreed with ComReg.
 - (b) For a price decrease and for new products Eircom should make publicly available and publish on its publicly available wholesale website at least two (2) months in advance of such changes coming into effect, unless

otherwise determined by ComReg. Eircom should notify ComReg in writing with the information to be published at least one (1) month in advance of any such publication taking place, unless otherwise determined by ComReg.

12.13 The rest of this subsection is discussed under the following headings:

- Proposed wholesale notification procedures; and
- Proposed retail notification procedures.

12.3.1 Proposed wholesale notification procedures:

12.14 Where Eircom decides to amend its wholesale prices for WLA and WCA services or introduce new prices, for both rental charges and for ancillary charges, we propose that the notification and approval procedures set out below should apply (for price reductions, price increases and for new prices) in order to ensure that Eircom complies with its price control obligations. This proposed obligation would therefore apply to price changes for all products, services and facilities mandated in the WLA and WCA markets in ComReg Document 16/96. We consider that the pre-notification procedures should apply to ancillary services, in addition to rental charges, e.g., upfront / connection charges, as these charges can be a significant cost to OAOs. In this regard, it is important that we understand the underlying costs and how the charges comply with the specified cost orientation obligation before they are notified to the marketplace.

12.15 The proposed notification obligations below apply both in the context of changes to cost oriented prices and also changes as a result of wholesale margin squeeze tests in both the WLA and WCA markets. Therefore, the products, services and facilities mandated under the access obligation in the WLA / WCA Market Review would be subject to the pre-notification and compliance obligations set out in paragraphs 12.16 to 12.18.

12.16 At notification, we propose that Eircom should provide a written statement of compliance demonstrating Eircom's compliance for its wholesale price changes (new prices and changes to existing prices) to the services in the WLA and WCA markets, demonstrating how it is complying with its wholesale price control obligation(s), including a cost orientation obligation and / or a wholesale margin squeeze obligation.

12.17 The proposed statement of compliance should include the following:

- (i) A full and true disclosure of all material facts for the purpose of demonstrating compliance with the wholesale price control based on the relevant wholesale pricing model(s) and / or wholesale margin squeeze model(s).
 - (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the wholesale price control and the relevant wholesale pricing model(s) and / or wholesale margin squeeze model(s).
- 12.18 Once ComReg receives the statement of compliance from Eircom it will assess it within one (1) month. Following the review, ComReg should provide Eircom with both (a) an appropriate written view, insofar as possible based on the information provided by Eircom at that point in time, in relation to the statement of compliance and (b) written confirmation that the making available or offering for sale of the new or existing wholesale product appears to be in line with the wholesale price control obligation(s). However, any such written *prima facie* view provided by ComReg does not fetter ComReg's future discretion in relation to its statutory powers.
- 12.19 We propose that wholesale promotions and discounts for WLA or WCA services should not be permissible going forward. Discounts and promotions create considerable uncertainty for access seekers and are difficult to justify by reference to underlying costs. This approach is consistent with the approach adopted in the 2016 Access Pricing Decision for SB-WLR.
- 12.20 Subject to a final decision, if appropriate, following this consultation, it would be incumbent on Eircom to ensure that it remains compliant with the obligations set out therein. For the avoidance of doubt, approval to proceed in this context means that ComReg is of the view (based on the information provided to it by Eircom) that the notified price does not appear to breach those obligations. The granting of approval to proceed does not amount to a definitive finding by ComReg that the product is compliant, or will remain compliant in the future, with the wholesale price control obligations. It should be noted that the granting of approval to proceed would be strictly without prejudice to ComReg's right to take action (whether pursuant to a final decision and/or pursuant to any of its relevant statutory enforcement powers) in respect of any price control obligations relating to WLA and WCA services that it believes may be non-compliant with Eircom's regulatory or competition law obligations. It is incumbent on Eircom to ensure that the proposed charge(s) remain compliant with any final decision at all times.
- 12.21 ComReg believes that the proposed notification procedures are proportionate and reasonable. The proposal should allow ComReg sufficient time to understand any proposed wholesale charge(s) and to assess whether these new prices (and amendments to existing prices) appear consistent with the wholesale price control obligations specified by ComReg. It also allows OAOs

to assess the likely impact of the changes in terms of its business case and to allow the OAOs time to notify its customers of a price change, where appropriate.

- 12.22 The proposed wholesale price notification obligations are consistent with the pre-notification obligations associated with the retail price changes, discussed below under subsection 12.3.2.

ComReg's Preliminary View:

- 12.23 The notification periods for price changes associated with WLA and WCA services are set out in the WLA / WCA Market Review. Please also see paragraph 12.12.
- 12.24 In the WLA and WCA markets, Eircom should notify ComReg of all new and revised wholesale prices for all WLA / WCA products, services and facilities, demonstrating compliance with the relevant price control obligations specified by ComReg, before launch and obtain prima facie approval to proceed from ComReg. The notification procedures at paragraphs 12.16 - 12.18 should apply.
- 12.25 Wholesale promotions and discounts should not be permitted.

Q. 28 Do you agree with ComReg's preliminary views regarding the pre-notification procedures that should apply to all proposed wholesale price changes or for new wholesale prices associated with the price control obligation for all WLA and WCA services mandated in the WLA / WCA Market Review? Please provide reasons for your response.

Q. 29 Do you agree that there should be no wholesale promotions and discounts going forward for WLA or WCA services? Please provide reasons for your response.

12.3.2 Proposed retail notification procedures:

- 12.26 ComReg proposes that retail price changes associated with services in the WLA and WCA markets, should follow pre-notification and pre-clearance procedures in order to ensure that Eircom comply with its retail margin squeeze obligations as currently proposed in Chapter 10 (for the WLA Market) and in Chapter 11 (for the Regional WCA Market).
- 12.27 In circumstances, where there is a proposed change to the retail price for a WLA or WCA service (both current generation and next generation), these procedures ensure a product offering either about to be launched by Eircom or a change to an offer already launched in the retail market does not cause a

margin squeeze and is in compliance with the price control obligations imposed on Eircom. The obligations ensure that products launched by Eircom can be effectively replicated by other operators, where appropriate, and are beneficial to end users and the marketplace.

- 12.28 It is important to note that the retail price changes in the WLA Market relates to retail broadband WLA services sold or offered in the footprint corresponding to those exchanges in the Urban WCA Market. Therefore, the proposed retail notification obligations set out in this subsection 12.3.2 only relates to new or amended retail broadband WLA prices associated with those exchanges corresponding to the Urban WCA Market. The retail price changes in the WCA Market (both current generation and next generation tests) relates to the Regional WCA Market. Therefore, the proposed retail notification obligations set out in this subsection only relates to new or amended retail WCA prices associated with exchanges in the Regional WCA Market.
- 12.29 ComReg is of the preliminary view that Eircom should be required to notify ComReg of its retail prices for new and amendments to existing current generation or next generation retail broadband products at least 5 working days (unless otherwise agreed with ComReg) before the new (or revised) prices are expected to come into effect, by email communication (or by another appropriate electronic method, as agreed with ComReg). If the new or amended retail price (for current generation and next generation services) being notified gives rise to a wholesale adjustment then the notification period to ComReg of 3 months (or 4 months in the case of a wholesale price increase) also applies.
- 12.30 At the point of notification of the retail price (as set out above) ComReg proposes that Eircom should also provide ComReg with a statement of compliance for its retail product(s) (new prices and changes to existing prices), demonstrating how it is complying with the retail price control obligation / retail margin squeeze test(s).
- 12.31 The proposed statement of compliance should include the following:
- (i) A full and true disclosure of all material facts for the purpose of demonstrating compliance with the retail margin squeeze test(s) based on the retail margin squeeze model(s).
 - (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the retail margin squeeze test(s) based on the retail margin squeeze model(s).

- (iii) Demonstration of how any amendments to the price of the equivalent wholesale offering¹²⁴ of an existing product are and will be in compliance with the retail margin squeeze model(s).

- 12.32 Once ComReg receives the statement of compliance from Eircom it will assess it within 5 working days (or as otherwise agreed with ComReg). Following the review, ComReg should provide Eircom with both (a) an appropriate written view, insofar as possible based on the information provided by Eircom at that point in time, in relation to the statement of compliance and (b) written confirmation that the making available or offering for sale of the new or existing retail product appears to be in line with the retail margin squeeze test(s). However, any such written *prima facie* view provided by ComReg does not fetter ComReg's future discretion in relation to its statutory powers.
- 12.33 For the purposes of promotions and discounts, the obligations above should apply to new and existing retail product(s) and any equivalent wholesale product(s).
- 12.34 Subject to a final decision, if appropriate, following this consultation, it would be incumbent on Eircom to ensure that it remains compliant with the obligations set out therein. For the avoidance of doubt, approval to proceed in this context means that ComReg is of the view (based on the information provided to it by Eircom) that the notified price does not appear to breach those obligations. The granting of approval to proceed does not amount to a definitive finding by ComReg that the product is compliant, or will remain compliant in the future, with the margin squeeze obligations. It should be noted that the granting of approval to proceed would be strictly without prejudice to ComReg's right to take action (whether pursuant to a final decision and/or pursuant to any of its relevant statutory enforcement powers) in respect of any current generation or next generation product that it believes may be non-compliant with Eircom's regulatory or competition law obligations. It is incumbent on Eircom to ensure that the proposed charge(s) remains compliant with any final decision at all times.
- 12.35 ComReg considers that there may be an alternative approach (which is a form of self-compliance by Eircom) which may merit further consideration. ComReg is interested in receiving views from interested parties regarding an alternative requirement which would merely require Eircom to demonstrate it has undertaken a form of self-compliance - to ensure ahead of launching a new or revised retail price for current generation and next generation broadband that it meets its obligations not to cause a margin squeeze.

¹²⁴ Please see the details of the proposed tests, including relevant wholesale and retail products in Chapter 10 for the WLA Market and in Chapter 11 for the Regional WCA Market.

- 12.36 ComReg considers that it may be sufficient to require Eircom to simply notify ComReg of new or revised retail prices for current generation and next generation broadband products. In other words, Eircom would simply be required to provide the retail amendment of the new or revised retail price for current generation and next generation broadband products to ComReg. Such notifications would not require ComReg's pre-clearance for launch. However, notifications would need to include a unique reference such that the retail current generation and next generation broadband products could be monitored ex-post.
- 12.37 Under this potential approach, ComReg proposes that Eircom would be required to demonstrate its ongoing compliance in respect of at least one retail amendment (chosen by ComReg) every three months. Where there appears to be issues with such retail amendments, as determined by ComReg, ComReg may require Eircom to revert to a five-day pre-notification and pre-clearance requirement.
- 12.38 For the avoidance of doubt, Eircom would be required to maintain records which demonstrated that a margin squeeze test assessment was undertaken prior to launch and that based on the reasonable assumptions used that no margin squeeze issues were raised.

ComReg's Preliminary View

- 12.39 The pre-clearance requirement is appropriate.
- 12.40 In the WLA Market, Eircom should notify ComReg of all new and revised retail prices for current generation and next generation broadband in those exchanges corresponding to the footprint of the Urban WCA Market at least five working days (unless otherwise agreed with ComReg) before launch and obtain prima facie approval to proceed from ComReg for their launch. The pre-notification and compliance measures set out in paragraphs 12.29 to 12.33 should apply.
- 12.41 In the Regional WCA Market, Eircom should notify ComReg of all new and revised retail prices for current generation and next generation broadband services at least five working days (unless otherwise agreed with ComReg) before launch and obtain prima facie approval to proceed from ComReg for their launch. The pre-notification and compliance measures set out in paragraphs 12.29 to 12.33 should apply.

Q. 30 Do you agree with ComReg's preliminary views that pre-notification and pre-clearance is appropriate for retail price changes in the WLA Market and the Regional WCA Market? Please provide reasons for your response.

12.4 “Regulatory Approval” mechanism to allow Eircom reduce prices in certain geographic areas

- 12.42 In setting the prices for VUA (both FTTC based VUA and FTTH based VUA) and for NGA Bitstream ComReg is considering whether there might be certain exceptional circumstances when it would be reasonable to allow Eircom, to price below the regulated level, but above a minimum level or price floor.
- 12.43 The objective of a price floor is to prevent Eircom from setting prices too low where they could foreclose economically efficient alternative investment by other operators that are either investing or planning to invest. Therefore, a price floor is intended to prevent the risk that Eircom could set wholesale access prices too low which could be detrimental to efficient infrastructure investment in networks by other operators.
- 12.44 Going forward, there may be some circumstances where Eircom may be at an unfair disadvantage where the regulated price for FTTC based VUA would prevent Eircom from competing with rival platforms or technologies in some areas of the country. In such cases, a lower FTTC based price may be warranted. ComReg would expect that such a request to reduce the price for FTTC based VUA (and FTTC based Bitstream) would only have merit in very unique or exceptional circumstances. We are aware that it is not currently possible to foresee how the market for various services will develop over time and in all areas of the country.
- 12.45 Consequently, we consider that there should be some level of discretion with regards to the price levels for FTTC based VUA (and FTTC based Bitstream) should such an exceptional request be made by Eircom to deviate from published prices. Nonetheless, we consider that there must be an number of preconditions that must be satisfied before a decision could be taken to approve or otherwise such a request while ensuring that the objectives of promoting competition and encouraging investment by other operators is not jeopardised.
- 12.46 In addition, in order to ensure an appropriate economic space between the different steps of the ladder of investment Eircom would have to decrease the prices of related wholesale access services at the same time. This approach should ensure that there are no undue cost disadvantages for entrants in using certain wholesale services relative to others that might prevent them from climbing up the “ladder of investment”. For example, the LLU price may have to be decreased by Eircom to be consistent with a decrease in the price for FTTC based VUA. This has been discussed in Chapter 7 of this document.
- 12.47 The approval mechanism would be a formal means by which Eircom can in exceptional circumstances reduce the price for FTTC based VUA / FTTC based

Bitstream so long it complies with the minimum price floor criteria specified at subsection 12.4.1 and subject to ComReg's approval to proceed.

- 12.48 This mechanism should avoid situations where Eircom may decide to introduce temporary price discounts in a given geographic area in order to foreclose a competitor from the market or with a view to encourage, for example, WCA services at the expense of WLA services. Consequently, wholesale prices should be more predictable for OAOs.
- 12.49 The approval mechanism should also provide greater assurance to those OAOs wishing to invest in alternative access network infrastructure because they know that their business plan will still be protected by a price floor that will prevent Eircom from reducing prices below the levels offered by the OAO in the area. Such an *ex ante* approach is pro-competitive since it provides Eircom with pricing flexibility in exceptional circumstances while encouraging competition between operators and creating more certainty for OAOs in developing their business plans.
- 12.50 This proposal is similar to the Regulatory Approval mechanism set out in Chapter 12 of the 2016 Access Pricing Decision regarding current generation wholesale access network services i.e., current generation standalone broadband ('**SABB**') and single billing wholesale line rental ('**SB-WLR**').

12.4.1 Approval mechanism for FTTC based NGA services:

- 12.51 Since the FTTC based VUA (including EVDSL) cost oriented price is averaged over the entire area where there is active FTTC and EVDSL lines (see Chapter 7, paragraphs 7.34 to 7.39 of this document), Eircom's price may be above costs in the more urban / dense areas. In this case, alternative operators with their own infrastructure can set lower prices. If Eircom cannot decrease its wholesale prices, it is also prevented from decreasing its retail prices given the proposal of a margin squeeze test for both FTTC and FTTH services at the retail level and hence Eircom would not be in a position to compete in these areas. Therefore, a "regulatory approval" mechanism could allow Eircom in exceptional circumstances to reduce the price for FTTC based VUA (including EVDSL) below the regulated price in order for it to align with another operator's price in order to be competitive subject to the caveats and price floor requirements set out in paragraphs 12.54-12.55.
- 12.52 Therefore, there may be exceptional circumstances where a price reduction below the regulated price at the wholesale level is deemed proportionate and justified to allow Eircom Retail and the OAOs that use the relevant wholesale service as an input in their retail offerings to compete with the services provided over an alternative platform. Lower prices should also benefit the interests of end-users.

12.53 While an *ex post* investigation could be used to determine if such a price reduction was uncompetitive ComReg considers that such a process could prove to be time consuming and could lead to a level of uncertainty that would reduce competition and dis-incentivise investment. Therefore, ComReg considers that an *ex-ante* remedy would provide industry with a level of assurance as to when and how such an exceptional price reduction below the regulated price would be acceptable for FTTC based VUA.

12.54 A reduction to the price for FTTC based VUA (or FTTC based Bitstream) may be considered proportionate and justified when assessed by ComReg on a case-by-case basis and subject to a number of pre-conditions including the following:

- a) The reduction to the price for FTTC based VUA would be an exceptional measure and should not create any legitimate expectation or create any precedent;
- b) The reduction to the price for FTTC based VUA is not be a short-term measure;
- c) The reduction to price for FTTC based VUA does not prevent new investment by alternative operators;
- d) The reduction to the price for FTTC based VUA should apply to a substantial geographic region and not just to a very select number of exchanges chosen by Eircom. ComReg would exercise its discretion following an examination of a request from Eircom to assess whether a proposed price reduction might be justified in such a specific geographic area;
- e) The price for FTTC based VUA would not be any lower than the price floor at paragraph 12.55.

12.55 Therefore, we propose that in the exceptional case where a reduction to the price for FTTC based VUA (or FTTC based Bitstream) is considered proportionate and justified, subject to ComReg's approval to proceed, the price for FTTC based VUA (or FTTC based Bitstream) should not be lower than:

- a) Eircom's full deployment costs for FTTC based VUA (including EVDSL) in the specific geographic area concerned, calculated on the basis of a BU-LRAIC+ costing methodology and with Eircom's Indexed RAB applied to Reusable Assets; or
- b) An alternative operator's wholesale FTTC based VUA price (or alternative operator's retail price minus retail costs and relevant network costs).

- 12.56 Where the price for FTTC based VUA is reduced by Eircom we consider that this reduction should be reflected in the price for FTTC based Bitstream. As the regulated price of both FTTC based VUA and FTTC based Bitstream are cost oriented and given that the costs of VUA are a significant cost element in the cost stack for FTTC based Bitstream then the costs for FTTC based Bitstream should reflect any changes to the costs associated with FTTC based VUA.
- 12.57 As our objective is to encourage OAOs to invest in VUA, it is important that there is always a sufficient space / margin between the two services; FTTC based VUA and FTTC based Bitstream, so that the price for FTTC based VUA is always below the price for FTTC based Bitstream. Similarly, we consider that in exceptional circumstances Eircom may be allowed to decrease its FTTC based Bitstream price below the cost-oriented level under the same price floor conditions as those for FTTC based VUA at paragraphs 12.54-12.55. As the difference between the regulated cost-oriented prices for FTTC based VUA and FTTC based Bitstream reflects the necessary economic space between the two products, this same economic space should be maintained in relation to FTTC based VUA and FTTC based Bitstream where prices go down. Therefore, if Eircom reduces the price for FTTC based Bitstream then the price for FTTC based VUA should also be reduced to maintain the appropriate economic space between the two services.

12.4.2 Price floor and approval mechanism for FTTH based VUA:

- 12.58 In the case of FTTH based VUA, the proposed margin squeeze approach does not protect the market from the risk of below-cost pricing for FTTH based VUA. In certain areas Eircom could have an incentive to price its FTTH based VUA service below costs in order to discourage alternative operators, including SIRO, from investing in the FTTH network.
- 12.59 In addition, Eircom may deploy some of its FTTH network in NBP areas. It is very likely that when building its FTTH network in NBP areas that Eircom may have anti-competitive incentives and in this area (NBP) Eircom may not expect to cover its investments given that it will have to share the demand with another possible network. Therefore, we consider that there is a need to introduce a price floor so that Eircom cannot price FTTH based VUA at too low a level in order to prevent predatory behaviour in this area.
- 12.60 Therefore, we propose that the price for FTTH based VUA should not be priced lower than:
- a) Eircom's demonstration of the full deployment costs for FTTH based VUA in the specific geographic area concerned; or

- b) The alternative operator's FTTH based VUA price (or alternative operator's retail price minus retail and relevant network costs).

- 12.61 In the case of part (a) above we consider that the full FTTH based VUA deployment costs, absent a cost orientation obligation, should be calculated by reference to Eircom's own business case (or business plan), and checked against the NGA Cost Model to ensure that all the relevant cost categories are included. Therefore, we propose that Eircom should be required to assess its own costs (for FTTH based VUA) in line with its business plans in order to comply with the price floor obligation for FTTH based VUA at paragraph 12.60.
- 12.62 As indicated by TERA in Section 4 of their report, the FTTH based VUA price should be higher than the FTTC based VUA price due to low demand for FTTH at the beginning of the deployment phase and the higher investments required.
- 12.63 As our objective is to encourage OAOs to invest in VUA, it is important that Eircom maintain a sufficient space / margin between the two services; FTTH based VUA and FTTH based Bitstream and also between FTTH based Bitstream and Retail NGA FTTH price. This should ensure that OAOs are encouraged to invest in FTTH based VUA and become less dependent on Eircom's network.
- 12.64 We also propose that an approval mechanism for FTTH based VUA should apply in the same way as that proposed for FTTC based VUA services, as described in paragraphs 12.43 to 12.57. While no specific cost based price is proposed for FTTH based VUA or FTTH based Bistream the regulatory approval mechanism would apply where Eircom wished to charge below its average costs as set out in paragraphs 12.60 - 12.61 or where it wished to set a differentiated price in a specific geographic area. The reasons set out above in respect of FTTC based products apply equally for FTTH services.

12.4.3 Approval mechanism for SABB in D03/16:

- 12.65 In the 2016 Access Pricing Decision, we specified that Eircom could charge a lower price for SABB Outside the LEA (or known as Regional Area 2 in this Draft Decision) so long as the price was not less than the average costs incurred by an efficient operator providing SABB within the "Modified LEA".
- 12.66 While we propose to re-impose the overriding obligation set out at Section 4.2 of the Decision Instrument at Annex 2 of the 2016 Access Pricing Decision we must recognise the fact that the footprint of the "Modified LEA" includes exchanges which are proposed to be deregulated as part of the Urban WCA Market in the WLA / WCA Market Review.

- 12.67 Therefore, in this Draft Decision we propose to replace the footprint of the “Modified LEA” to reflect those exchanges no longer subject to regulation in the WCA Market. We propose that the obligation set out in Section 4.2 of the 2016 Access Pricing Decision should be re-imposed in this Draft Decision but with the footprint replaced by a subset of exchanges relating to the “Regional Area 1”. In addition, similar to the approach taken by ComReg in the Access Pricing Decision, we consider that in determining the appropriate footprint of exchanges for the price floor for SABB we are not trying to encourage infrastructure-based competition in those specific types of exchanges covered by Criterion 5. Those exchanges included to date, as per the 2013 Bundles Decision, in the LEA under Criterion 5¹²⁵ have on average fewer than c.650 homes. The relative addressable market of these exchanges may be too small to justify commercial infrastructural-based investments by OAOs. ComReg considers that these exchanges should be excluded on the basis that infrastructure-based competition and fibre roll-out are unlikely in these areas. Therefore, the relevant exchange footprint for the price floor for SABB should be “Regional Area 1” excluding those exchanges included under Criterion 5 (based on the 2013 Bundles Decision or as amended in the upcoming Bundles consultation document). See paragraphs 6.39-6.41 of the Access Pricing Decision.
- 12.68 In this regard we propose to fix the exchange footprint (of Regional Area 1 excluding Criterion 5 exchanges) at the time of the Decision in order to provide price stability and certainty to the Industry regarding the price floor for current generation SABB. Please see Chapter 12 of the 2016 Access Pricing Decision for further details on the price floor for SABB.

ComReg’s Preliminary view

- 12.69 In exceptional circumstances only and subject to the pre-conditions set out at paragraph 12.54, Eircom may be allowed, subject to ComReg’s approval to proceed, to reduce the wholesale access price for FTTC based VUA (including EVDSL) below the regulated price provided that the price is not lower than:
- (a) Eircom’s full deployment costs for FTTC based VUA (including EVDSL) in the specific geographic area, calculated on the basis of a BU-LRAIC+ costing methodology and with Eircom’s Indexed RAB applied to Reusable Assets; or
 - (b) An alternative operator’s FTTC based VUA price (or alternative operator’s retail price minus retail costs and relevant network costs).

¹²⁵ The Bundles Decision identified Criterion 5 exchanges as exceptional exchanges which either: (a) is surrounded by a qualifying exchange; or (b) serves fewer than 500 residential premises and is located either adjacent to or in reasonable proximity to qualifying exchanges; or (c) is determined to the satisfaction of ComReg to have an economic affinity with adjacent qualifying exchanges.

- 12.70 Where Eircom reduces the price of FTTC based VUA, any such changes should also be reflected in the price for FTTC based Bitstream.
- 12.71 Similarly, in exceptional circumstances Eircom may be allowed to decrease its FTTC based Bitstream price below the cost-oriented level under the same price floor conditions as those for FTTC based VUA at paragraph 12.69, so long as any reductions to FTTC based Bitstream are also reflected in the price for FTTC based VUA.
- 12.72 Subject to the pre-conditions set out at paragraph 12.54, the wholesale access price for FTTH based VUA should not be priced at any lower than:
- (a) Eircom's full deployment costs for FTTH based VUA; or
 - (b) The alternative operator's FTTH based VUA price (or alternative operator's retail price minus retail costs and relevant network costs).
- 12.73 In the case of part (a) the full FTTH based VUA deployment costs, absent a cost orientation obligation, should be calculated with reference to Eircom's own business case (or business plan). Eircom should be required to assess its own costs (for FTTH based VUA) in line with its business plans in order to comply with the price floor obligation for FTTH based VUA. Eircom should always maintain a sufficient space / margin between FTTH based VUA and FTTH based Bitstream.
- 12.74 For SABB in Regional Area 2 we propose to re-impose the obligation at Section 4.2 of the Decision Instrument in the 2016 Access Pricing Decision for the reasons set out in Chapter 12 of the 2016 Access Pricing Decision but to amend the footprint from "Modified LEA" to those exchanges associated with Regional Area 1 excluding those exchanges in Criterion 5 of the 2013 Bundles Decision (or as amended in the upcoming Bundles consultation document). This exchange footprint should be fixed at the time of the final Decision.

Q. 31 Do you agree with ComReg's preliminary view regarding the regulatory approval mechanism and that in exceptional circumstances only Eircom may be allowed to reduce wholesale prices for FTTC based NGA services (VUA and Bitstream) below the regulated price so long as it does not breach the price floor requirements at paragraphs 12.54-12.55 and subject to ComReg's approval? Please provide reasons for your response.

- Q. 32 Do you agree with ComReg's preliminary view regarding the regulatory approval mechanism (and pre-conditions at paragraph 12.54) that the price for FTTH based VUA should not go below the price floor at paragraph 12.72 and that Eircom's full deployment costs for FTTH based VUA should be calculated with reference to Eircom's own business case / plan? Please provide reasons for your response
- Q. 33 Do you agree with ComReg's preliminary view that in the context of the price floor for SABB in Regional Area 2 (as per Section 4.2 of the Decision Instrument in Annex 2 of 2016 Access Pricing Decision) that the footprint of the "Modified LEA" should be replaced by those exchanges in Regional Area 1 excluding those exchanges in Criterion 5 of the 2013 Bundles Decision? Please provide reasons for your response.

Chapter 13

13 Ancillary charges

13.1 Overview

- 13.1 In earlier chapters of this document we discussed the appropriate costing and pricing methodologies for setting the rental charges for FTTC based NGA services and for current generation Bitstream and BMB services.
- 13.2 Currently, the ancillary services in the WPNIA Market and the ancillary services in the WBA Market are subject to cost orientation. The ancillary services include services such as migrations, fault repair, access connections, co-location, in-building handover, in-span handover and customer sited handover. The cost orientation obligation for ancillary services was further specified in the 2016 Access Pricing Decision such that Eircom should ensure that it recovers no more than the actual costs incurred adjusted for efficiency plus a reasonable rate of return. In the WLA / WCA Market Review we proposed to re-impose the cost orientation obligation based on the further specification in the 2016 Access Pricing Decision in the WLA Market and in the Regional WCA Market.
- 13.3 In this chapter we focus particularly on how the connection costs associated with current generation and next generation services should be recovered. We also address the proposed costing methodology that we consider should apply in relation to interconnection charges associated with wholesale Ethernet interconnect links ('**WEILs**').
- 13.4 The rest of this chapter is discussed under the following headings:
- Recovery of connection costs for CGA / NGA services; and
 - WEIL charges.

13.2 Recovery of connection costs for CGA / NGA services

13.2.1 Background on FTTH connections:

- 13.5 In order to provide broadband services based on Eircom's FTTH network, for each new connection it is necessary to deploy a final fibre drop from the distribution point ('DP') at the edge of the access network to the home connection point or optical network terminal ('ONT'). The cost of providing this dedicated link is charged by Eircom to the Retail Service Provider ('RSP') when they rely on Eircom's wholesale inputs. The RSP can then decide how to recover this wholesale charge in the contract it offers to the end-user, e.g. as an up-front connection charge, as part of the on-going rental or partly up-front and partly through the rental.
- 13.6 As we understand it, the DP can either be a pole or an underground joint-box and the final fibre drop can be delivered either underground in a buried duct or overhead using poles to support the fibre drop. In more densely populated (urban) areas the distance between the DP and the end user's premises tends to be relatively short but in rural areas the premises can be some distance from the DP and the operator could require access to a significant quantity of infrastructure (either poles or duct) to connect the more remote end users. As a result, the costs incurred in connecting some end users can be expensive.
- 13.7 When Eircom started to deploy its FTTH network it adopted a policy that it would only connect end users in those instances where no new infrastructure build was required, as we understand it. This meant that an end user was only considered for connection when the end users premises was close enough to the DP that a direct connection could be achieved or the required infrastructure was already in place and could be re-used to accommodate the fibre drop. Eircom refer to such a connection as a standard connection and have estimated the associated cost of deploying the fibre and installing the ONT in the end users premises to be \times on average. An end user that could not be connected via a standard connection would not be considered for connection and, on this basis, Eircom introduced a charging regime that included an up-front charge of €150¹²⁶ with the remaining costs deemed to be recovered as part of the monthly rental.

¹²⁶ See table 4.1.1 of the WBARO price list at http://www.openeir.ie/Reference_Offers/?selectedtab=wbaro

- 13.8 More recently Eircom have re-visited its policy on connecting end users and are adopting a FTTH network design that targets bringing a DP to within 150 meters of all premises. While such a design should significantly reduce the potential number of “non-standard” connections there will still be occasions where new infrastructure will need to be deployed to connect a fibre drop from the DP to the end user’s premises. For more remote end users Eircom may have to deploy additional poles or underground infrastructure along public roads between the DP and the end user’s premises.
- 13.9 In these instances Eircom have defined a Network Touch Point (‘NTP’) which is located where the end user property boundary meets the public road. As any infrastructure between the DP and the NTP is on a public road it has the potential to be used by more than one end user but any infrastructure that would be deployed beyond the NTP would be on private property and it would most probably be unique to one end user.
- 13.10 As we understand it, Eircom’s policy is that, provided that the end user’s premises is less than 50 meters from the NTP, it will deploy all the infrastructure that is required between the DP and the NTP and connect the end user but that the costs of such incremental infrastructure should be recovered as part of the up-front connection cost paid by the RSP. In those instances where the end user’s premises is over 50 meters from the NTP the end user will be required to provide roped duct from their premises to the NTP on the public road before Eircom would deploy the fibre drop. The proposed Eircom connection charge is based on the national average of the costs to Eircom of connecting all FTTH end users.
- 13.11 Eircom propose that, as a result of the additional costs (mainly incremental infrastructure between the DP and NTP) of connecting these more remote rural end users, the average connection cost has increased from $\text{€}270$ to $\text{€}270$. Consequently, Eircom has increased the upfront charge to $\text{€}270$ ¹²⁷, from 1 February 2017. As we understand it, the charge of $\text{€}270$ should connect all addresses within 150 meters of the DP and no more than 50 meters from the NTP.
- 13.12 In this Draft Decision we propose to consult on the various options of cost recovery for the costs associated with CGA and NGA connections by Eircom, the advantages and disadvantages of each option and our proposed recommendation on how these costs should be recovered going forward.

¹²⁷ http://www.openeir.ie/Reference_Offers/?selectedtab=wbaro#baro

13.2.2 Cost recovery options

13.13 As discussed in Chapter 15 in the RIA, and as a reminder, our objectives as set out in Section 12 of the Communications Regulations Act 2002 (as amended) aims to:

- (i) Promote competition and in particular to encourage efficient investment in infrastructure and promoting innovation;*
- (ii) Contribute to the development of the internal market;*
- (iii) Promote the interests of users within the Community and in particular to encourage access to the internet at a reasonable cost to end-users.*

13.14 The incremental costs incurred by the network operator when connecting a new end-user can vary from the costs associated with a standard connection where no new infrastructure is required to cases where significant infrastructure deployment is necessary as the end user's premises is located some distance from the DP.

13.15 In the case of the example of the FTTH connections discussed at paragraphs 13.5 – 13.11, Eircom is treating all infrastructure up to and including the DP as being part of the FTTH access network and are targeting to have a DP within 150 meters of each home passed by the FTTH network. Any subsequent network investment between the DP and the ONT in the end user's premises is only considered when an end user applies to be connected for service. As we understand it, Eircom proposes to connect all addresses that are within 150 meters of the DP and no more than 50 meters from the NTP.

13.16 Consequently, Eircom is seeking to recover the costs of the FTTH access network between the local exchange and the DP as part of the ongoing rental charges. However, it considers the costs of all incremental investment it incurs from the DP up to and including the ONT in the end users premises (including infrastructure on public roads between the DP and the NTP) as a connection cost, even though many of the assets deployed are assets with long economic lives that are capitalised and depreciated over a number of years.

13.17 In line with our objectives we have considered the following options in terms of cost recovery for the installation of the ONT by Eircom either in the context of CGA or NGA connections:

1. Recover all the connection costs up-front (as part of a connection charge);
2. Recover all the connection costs as part of the recurring monthly rental charge;

3. Recover the connection costs based on a combination of (1) and (2).

Option 1: Recover all the costs upfront:

- 13.18 By recovering the costs upfront, the RSP faces a one-off cost which is similar to the one-off investment faced by Eircom. This option better reflects the costs incurred by a new market entrant that would deploy an end-to-end connection.
- 13.19 When considering cost recovery it is important to give due regard to the principle of cost causation. Cost causation requires costs to be recovered from the particular actions that causes the costs to be incurred at the margin. This would suggest that, in the case of the FTTH connection where the average incremental cost to the network operator of connecting a new end user is identified by Eircom at paragraph 13.11 as € , then an average connection charge of € is appropriate to ensure full cost recovery.
- 13.20 This approach also improves Eircom's cash flow and ensures that Eircom is not exposed to any risk as it will recover all its investment upfront. Therefore, charging all the full connection costs upfront appears to be consistent with the objective of encouraging efficient investment.
- 13.21 On the other hand, given the materiality of the upfront connection charge, this approach is likely to cause a delay in service take-up, especially if the RSP seeks to pass the charge to End-users. It is possible that imposing a high connection charge onto the end-user would be in conflict with the aim of promoting the interests of users within the Community and encouraging access to the internet at a reasonable cost to end-users.
- 13.22 In addition, the recovery of all the connection costs upfront means that the RSP is exposed to the risk that it will not recover all its costs. The first RSP to connect an end user must pay the connection costs upfront but, unless the RSP recovers these costs via a connection charge to the End-user, it risks losing part of the investment it incurs should the end user decide to cease service or churn to another RSP.
- 13.23 Furthermore, as the end user contract period is significantly shorter than the asset lives of the connection infrastructure, the second and subsequent RSP to access the End-user would benefit from almost all of the initial connection investment made by the first RSP to that End-users premises. For example, when first connecting the end user Eircom may have to install a duct into the end user's premises before connecting the fibre and the ONT. If the cost of this infrastructure is recovered from the initial connection charge levied on the first RSP then it is available to the second and subsequent RSP's at no extra cost. When an end user decides to churn the second / subsequent RSP would only pay a small migration fee, even though it benefits significantly from the

investment paid for by the first RSP at the initial connection stage. In this scenario, a RSP may develop a discriminatory pricing measure, differentiating between those End-users that already have a connection and those who have no connection. This could be a deterrent to encouraging take-up of NGA services by new End-users and would not be in the interests of users.

- 13.24 Therefore, cost recovery also needs to consider the principle of the distribution of benefits, which requires that costs should be recovered from the beneficiaries. As RSPs who migrate existing end users are benefitting from the costs incurred when the end user was first connected to the CGA / NGA network, it seems reasonable that those RSPs face wholesale charges that contribute to the cost recovery of the initial connection costs. This suggests that at least some of the connection costs should be recovered as part of an ongoing rental charge.

Option 2: Recover all the costs in the monthly rental:

- 13.25 While the recovery of the connection costs upfront may cause a delay in take-up of the service, especially as RSPs could be incentivised to discriminate between those End-users that are already connected to the CGA / NGA network and those requiring a new connection, recovery of the costs through the monthly charge would encourage RSPs to target all End-users.
- 13.26 Unlike the case at paragraph 13.22, where the upfront connection charge means that the first RSP carries all of the financial risk in the case where the End-user churns within a short period of time, with a monthly rental charge there is significantly less financial risk for the first RSP in case of early churn scenario, as the RSP which operates the line contributes to the recovery of the connection cost.
- 13.27 Also, while Eircom does not recover the connection costs as part of an upfront charge levied on the RSP, the risk of non-recovery of these costs is still relatively low for Eircom as it can still expect to recover the costs as part of the monthly rental charge it levies on the RSP. Consequently, recovering the connection costs on the basis of a monthly rental charge should also be consistent with promoting competition and encouraging efficient investment as RSPs are more likely to compete for all end users and Eircom is reasonably assured of recovering its investment.
- 13.28 If the connection costs are recovered as part of the monthly rental, then the period over which the connection cost is amortised is important.

13.29 For example, there are a number of components to a DP-ONT connection, each with different asset lives, as set out in Figure 35. An inappropriate amortisation period between 0 to 40 years could lead to a shortfall in monthly cost using economic depreciation.

Figure 35: Indicative asset lives for cable connection components

Component	Asset life
Duct, Boxes & Civil Works	40 years
Poles	30 years
Service lead	4 years
ONT	4 years

13.30 In addition, another parameter to consider when recovering the costs through the monthly rental is the average expected customer lifetime. This parameter can be difficult to calculate because of differences in customer behaviour between rural and more densely populated (urban) areas. However, this is less of an issue if the RSP that operates the connection continues to contribute to the connection cost through the monthly rental price than under Option 1 where the first RSP has to recover all of the connection cost. When the connection cost is recovered as part of a monthly rental charge the customer lifetime that is relevant to cost recovery is the time that the customer remains on the CGA / NGA network and not just the time it remains with a single RSP as is the case under Option 1.

13.31 In addition, in the case of FTTH, as the connection cost includes assets deployed along a public road there is the possibility that these assets can be used to serve more than one end user, as a single pole or joint box can accommodate multiple fibre drops. In such circumstances it seems reasonable to align cost recovery with the time that the asset remains in use rather than the time that an End-user is expected to subscribe to a particular RSP.

Option 3: A combination of Option 1 and Option 2:

13.32 In the case of FTTH connections, this option reflects the current status quo. Eircom charge a material part of the connection costs upfront and the remaining costs as part of the rental. This was the approach adopted by Eircom when it started to deploy its FTTH network as the connection cost it initially charged was set at €150 even though the cost of an average connection was equivalent to the standard connection cost of ∞ . Eircom's latest proposal also follows this approach as the proposed connection cost is €270 from 1 February 2017 while

Eircom have identified the average incremental cost of connecting all qualifying end users that are within 150 meters of a DP and 50 meters of a NTP to be € .

13.33 However, while there is some precedence for Option 3, we must consider the basis to determine the level of charge that should be recovered as a once-off connection fee. The following factors should be considered:

- a) If there are certain cost components that are more relevant to an up-front connection charge while it is more appropriate to recover other cost components as part of an ongoing charge; and
- b) To what extent affordability should be considered when setting the level of the connection charge.

13.34 As discussed under Option 1 charging all the connection costs up front appears consistent with the aim of encouraging efficient investment in infrastructure as Eircom is assured of cost recovery. However, this approach can conflict with the aim of promoting the interests of End-users as the high connection charge could discourage RSPs from connecting new end users in favour of a policy of seeking to migrate existing end users.

13.35 In addition, if subsequent RSPs continue to benefit from the initial connection investments, the distribution of benefits suggests that they should contribute to the recovery of these costs through ongoing rental charges. Consequently, it appears preferable that those cost components that continue to provide a benefit to End-users should be recovered as part of the monthly rental rather than via an upfront connection charge. Indeed the fact that Eircom capitalises the expenditure on some of the components associated with connections indicates the significant economic life of those components and suggests that, in particular in the case of FTTH, the costs of poles, ducts and boxes on public roads¹²⁸ should be recovered on the basis of an ongoing rental charge rather than up-front connection.

13.36 ComReg notes that all of the additional cost components that Eircom has identified in relation to connecting all FTTH end users within 150 meters of a DP and 50 meters of a NTP relates to the need to deploy new civils such as poles and ducts to connect some end users. Therefore, ComReg is of the preliminary view that these costs should be recovered from the monthly rental charge rather than as part of an upfront connection charge.

13.37 The remaining incremental costs associated with an FTTH connection include the costs of the service lead (underground or overhead fibre) and the ONT in the end user's premises, as well as the costs of the installation and

¹²⁸ As we understand it, Eircom's policy is that it does not deploy new civil infrastructure such as duct and poles on private property where there is no public right of way to connect an FTTH end user.

commissioning of same. ComReg understands that these component costs are included in the standard connection costs of \pounds and are capitalised with an asset life of four years.

- 13.38 As the standard connection cost relates to components that are specific to a single end user, the principles of cost recovery would suggest that the costs can be recovered via an upfront connection charge or over the lifetime that the end user is expected to be on the network or a mixture of both. However, as noted in paragraph 13.23, a high connection charge could give rise to RSPs discriminating between end users depending on the existence of a connection. There is also no evidence of RSPs passing on the connection charge to end-users which suggests that a high connection charge is considered a barrier to attracting end users. Consequently, having a lower wholesale connection charge appears to be more consistent with retail behaviour.
- 13.39 For the reasons set out at paragraphs 13.34 to 13.38, ComReg is of the preliminary view that the upfront connection charge in the case of CGA and NGA services should only seek to recover those costs that arise each time an end user migrates between RSPs but that any costs associated with equipment or infrastructure that continues to support service provision for the period that the end user is subscribed to the network should be recovered as part of the ongoing rental.
- 13.40 Taking into account our regulatory objectives, recovery of the costs of equipment and infrastructure that is deployed when the end user is first connected to the network in the monthly rental charge on the basis of the economic life of the assets will ensure the promotion of competition, as the RSP which operates the line will continue to contribute to the recovery of the associated costs. Furthermore, it prevents distortion or restriction of competition, where a RSP's pricing strategy may be based on avoiding the upfront wholesale connection fee in the expectation that it would be paid by another RSP and so aims to migrate existing end users.
- 13.41 In the case of CGA and NGA connections, the proposed monthly rental charge should include the cost of work on the network that is shared between several End-users, as these costs are not End-user specific. In addition, the specific End-user costs likely to benefit a second / subsequent RSP in the case of End-user churn should also be recovered as part of the monthly charge. The only exception is the cost of migration which should continue to be charged upfront. This is an administration charge which should not be material.

ComReg's Preliminary View:

13.42 ComReg is of the preliminary view that the connection costs for CGA and NGA services should be recovered through a combination of an upfront connection charge and a monthly rental charge.

13.43 Only those costs that are incurred each time an end user migrates from one RSP to another should be recovered on the basis of an upfront connection charge. Other costs, such as the costs of the service lead (underground or overhead fibre), the ONT in the end user's premises or the costs of all poles, ducts and boxes on public roads, should be recovered as part of the ongoing rental charge in line with the economic life of the asset.

Q. 34 Do you agree with ComReg's preliminary view that the connection costs associated with CGA and NGA services should be recovered through a combination of an upfront connection charge and a monthly rental charge as set out at paragraph 13.43? Please provide reasons for your response.

13.3 Charges for WEIL services

13.3.1 Background:

13.44 Wholesale Ethernet Interconnection Link ('**WEIL**') is an interconnection service provided by Eircom which provides a handover for various wholesale products including its NGA and Next Generation Network ('**NGN**') wholesale products.

13.45 In the WLA / WCA Market Review ComReg proposed that Eircom should provide access to its interconnection services in the WLA Market and in the WCA Market.

13.46 The WEIL / interconnection service has four formats:

- Customer sited handover ('**CSH**');
- In-Span handover ('**ISH**');
- In-building handover ('**IBH**'); and
- Edge node handover ('**ENH**').

13.47 The first three account for the majority of cases.

13.48 WEIL is an interconnect product, generally using bandwidth capacity ranging from 1 to 10G/B, designed to enable an OAO to aggregate the end-user NGA / NGN broadband traffic demands which are generated by its end users based on VUA and Bitstream services.

- 13.49 Using this interconnection service all of the OAOs end users NGA / NGN traffic can be directed to a single point of interconnection or point of handover ('**POH**'). In the context of the WEIL solution, this permits the aggregation of traffic from Bitstream end users who are dispersed geographically throughout the network. In the case of VUA, the POH is located at the local VUA exchange, to facilitate the aggregation and handoff of traffic from within each of the more localised Aggregation regions in the network.
- 13.50 It is also important to note that the WEIL interconnection services are used to aggregate and handover connectivity from Wholesale Symmetrical Ethernet Access ('**WSEA**') circuits or leased lines.
- 13.51 An OAO using this interconnection solution, can divide the capacity on the link into smaller Service Access Bandwidth segments ('**SABS**'). In this way both NGN Ethernet leased lines and NGA broadband traffic interconnection can be serviced on the same link.
- 13.52 In the case of CSH, ISH, IBH and ENH the aggregated traffic from NGA / NGN broadband traffic and in some instances from NGN WSEA circuits are combined at an Eircom node and carried over a fibre cable to a node placed within the premises of the OAO. At that location the OAO extracts the traffic streams from each service, for onward connection, such as an ISP, in the case of NGA traffic.
- 13.53 In the case of CSH, currently Eircom provides the terminating node electronics and the fibre cable/trench connecting each location. Some OAOs will provide their own trench and cable for part of the route length between these two locations and also provide its own terminating node at its network node location. In such instances the product is classified as ISH. Finally, in cases where an OAO is co-located at an Eircom node location, and the OAO provides its own terminating node, costs are minimised, as the OAO no longer requires the external cable connectivity between both locations. This form of WEIL is known as IBH.

13.3.2 Appropriate costing methodology:

- 13.54 In the WLA / WCA Market Review we proposed that a cost orientation obligation should apply to those access services mandated in the WLA Market and in the Regional WCA Market. It is proposed that the cost orientation obligation applies to interconnection / WEIL services, including the Bitstream Ethernet connection service ('**BECS**') and BECS over WEIL.

- 13.55 Currently, WEIL services (including BECS and BECS over WEIL), mandated in the national wholesale terminating segment of wholesale leased lines market, have been subject to cost orientation based on a BU-LRAIC+ methodology.¹²⁹
- 13.56 We consider that it is appropriate to use the BU-LRAIC+ methodology in the context of WEIL services in the WLA Market and in the Regional WCA Market. LRAIC+ includes appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. This approach should promote efficient infrastructure investment by alternative operators who may want to replicate the assets in question. In addition, the LRAIC+ would ensure consistency with the approach already used for WEIL charges in the context of NGN Ethernet Leased Lines and also the BU-LRAIC+ costing methodology proposed in the context of a cost orientation price control for other access services e.g., FTTC based VUA in the WLA Market and for FTTC based Bitstream and CGA Bitstream in the Regional WCA Market.
- 13.57 ComReg is of the preliminary view that the WEIL charges, including BECS and BECS over WEIL, associated with the WLA Market and the Regional WCA Market should be based on a BU-LRAIC+ methodology.

Q. 35 Do you agree with ComReg's preliminary view that the WEIL charges, including BECS and BECS over WEIL, in the WLA Market and the Regional WCA Market should be based on a BU-LRAIC+ methodology? Please provide reasons for your response.

¹²⁹ ComReg Decision D02/12 (ComReg Document No 12/03): Response to Consultation Document No. 10/70 and 11/32 - A final decision further specifying the price control obligation in the market for wholesale terminating segments of leased lines; 2 February 2012.

Chapter 14

14 Draft wholesale prices

- 14.1 In Chapter 7 of this document we discussed our preferred pricing approach for determining the rental charges for FTTC based NGA services i.e., for FTTC based VUA (including Remote VUA, Local VUA and EVDSL) and FTTC based Bitstream.
- 14.2 In Chapter 9 of this document we set out our preferred pricing approach for setting the rental charges associated with current generation Bitstream and BMB services.
- 14.3 In this chapter we set out the proposed charges for FTTC based NGA services and current generation Bitstream and BMB services. The proposed monthly rental prices in Figures 36-38 are also set out in Annex 8 of this Draft Decision.
- 14.4 The prices set out below relate to the years covered by the proposed price control period i.e., 2017/18-2019/20 and based on an implementation date of 1 July, as well as the prices that could apply beyond the price control period i.e., 2020/21 and 2021/22, for transparency purposes and in the event that a subsequent review is not completed by then.

14.1 Proposed charges for FTTC based NGA services

- 14.5 Figure 36 sets out the monthly rentals for FTTC based VUA (including the average cost for Remote VUA, Local VUA and EVDSL).
- 14.6 In addition, Figure 36 sets out the monthly rental for FTTC based Bitstream, based on national handover, regional handover and the prices based on an assumed mix of 90% regional handover and 10% national handover.
- 14.7 The proposed additional costs relevant to the provision of a POTS based FTTC service are also set out in Figure 36.
- 14.8 Please also see Annex 8, Table 1 for the draft prices.

Figure 36: Proposed monthly prices for FTTC based NGA services

Services	€	€	€	€	€
	2017/18	2018/19	2019/20	2020/21	2021/22
FTTC based VUA¹³⁰	16.50*	16.86*	17.21*	17.59*	17.98*
FTTC based Bitstream:					
<u>National handover:</u>					
<i>Per port</i>	21.22*	21.66*	22.11*	22.60*	23.04*
<i>Per Mbps</i>	0.78	0.61	0.46	0.35	0.32
<u>Regional Handover:</u>					
<i>Per port</i>	18.75*	19.13*	19.52*	19.94	20.34*
<i>Per Mbps</i>	0.29	0.22	0.17	0.13	0.11
<u>Assumed 90% / 10% mix:</u>					
<i>Per port</i>	18.99*	19.38*	19.78*	20.20*	20.61*
<i>Per Mbps</i>	0.34	0.26	0.20	0.15	0.13
POTS based FTTC NGA service					
	4.96	4.96	4.96	4.96	4.96

* Includes fault repair costs and provisioning costs.

14.2 Proposed charges for current generation Bitstream and BMB services

14.9 Figure 37 sets out the BU-LRAIC+ monthly rentals for current generation Bitstream and BMB services. Please also see Annex 8, Table 2 for the draft prices.

Figure 37: Proposed monthly BU-LRAIC+ prices for current generation Bitstream services in the Regional WCA Market

<u>CGA Bitstream BU-LRAIC+ prices</u>	€	€	€	€	€
	2017/18	2018/19	2019/20	2020/21	2021/22
<u>BMB: National handover:</u>					
Per port	6.62*	6.79*	6.99*	7.16*	7.14*
Per Mbps	1.18	0.88	0.68	0.53	0.42
<u>BMB: Regional handover:</u>					
Per port	5.65*	5.79*	5.95*	6.08*	6.02*
Per Mbps	0.52	0.38	0.29	0.22	0.18
Bitstream IP¹³¹	5.93*	6.07*	6.24*	6.21*	5.96*

*Including line share and fault repair

14.10 Figure 38 sets out the indicative price floors for current generation Bitstream and BMB services for 2017/18, should we decide to continue with the principle of a price floor for CGA services going forward. Please also see Annex 8, Table 3 for the draft prices.

¹³⁰ This includes the average costs for Remote VUA, Local VUA and EVDSL.

¹³¹ Bitstream IP prices are based on a combination of the costs of the port and traffic usage. The proposed prices listed here are based on a weighted average assumption of traffic use by the Bitstream IP user for each year, and on the handoff of traffic through a mixture of National and Regional Handover.

Figure 38: Indicative price floors for current generation Bitstream services (2017/18)

Description	Per port € 2017/18	Per Mbps € 2017/18
<u>Option 1: OAOs present in sites already unbundled (79 sites)</u>		
National handover	6.23*	1.42
Regional handover	4.29*	0.61
Option 2: OAOs present in all 141 Local VUA sites		
National handover	6.53*	1.45
Regional handover	4.46*	0.62

*Including line share and fault repair

Chapter 15

15 Regulatory Impact Assessment ("RIA")

15.1 Overview

- 15.1 A Regulatory Impact Assessment ('**RIA**') is an analysis of the likely effect of proposed new regulation or regulatory change. The RIA should help identify regulatory options, and should establish whether the proposed regulation is likely to have the desired impact. The RIA is a structured approach to the development of policy, and analyses the impact of regulatory options on various stakeholders.
- 15.2 ComReg's approach to the RIA is set out in the Guidelines published in August 2007 in ComReg document No. 07/56 and 07/56a. In conducting the RIA, ComReg takes into account the RIA Guidelines¹³², issued by the Department of An Taoiseach in June 2009 under the Government's Better Regulation programme. Section 13(1) of the Communications Regulation Act 2002 (as amended), requires ComReg to comply with Ministerial Policy Directions. The Policy Direction of February 2003¹³³ requires that, before deciding to impose regulatory obligations on undertakings, ComReg shall conduct a RIA in accordance with European and International best practice and otherwise in accordance with measures that may be adapted under the Government's "Better Regulation" programme.
- 15.3 In conducting the RIA, ComReg has regard to the RIA Guidelines, while recognising that regulation by way of issuing decisions e.g. imposing obligations or specifying requirements in addition to promulgating secondary legislation may be different to regulation exclusively by way of enacting primary or secondary legislation. Our ultimate aim in conducting a RIA is to ensure that all measures are appropriate, proportionate and justified. To ensure that a RIA is proportionate and does not become overly burdensome, a common sense approach will be taken towards a RIA.

¹³² See "RIA Guidelines: How to conduct a Regulatory Impact Analysis", October 2005 and revised in 2009 - see <https://www.djei.ie/en/What-We-Do/Business-Sectoral-Initiatives/Reducing-Administrative-Burdens/Responsibility-for-Better-Regulation-in-Ireland/>

¹³³ Ministerial Policy Direction made by the Minister for Communications, Marine and Natural Resources on 21 February 2003.

- 15.4 In the context of this Draft Decision ComReg considers that where no material changes are proposed to the underlying price control obligation then a RIA is not required.
- 15.5 However, where we are proposing changes to the underlying price control obligation and / or further specifying an obligation for the first time we consider that a RIA is necessary. This is relevant in relation to the following wholesale access services:
- For FTTC based NGA services (VUA and NGA Bitstream) we are further specifying the cost orientation obligation (per the WLA / WCA Market Review) for the first time.
 - For current generation Bitstream and BMB services we are proposing to change the costing methodology from HCA to BU-LRAIC+.
- 15.6 In addition, to the above we are also proposing to further specify the margin squeeze obligations in the WLA Market and in the WCA Markets.
- 15.7 The margin squeeze tests in the Regional WCA Market are a continuation of tests that are currently applied nationally in the WBA market. The current margin squeeze tests in the WBA market have been re-imposed in the WLA / WCA Market Review although it is proposed that the tests will now only apply to the Regional WCA Market. Please see Chapter 11 of this document for the details. Therefore, as there are no material changes to the WCA margin squeeze tests (or the underlying principles) we do not consider that an assessment of these tests is required as part of the RIA. Please note the CGA retail margin squeeze tests were previously specified in the 2014 WBA Pricing Decision (in the LEA and Outside the LEA) while the NGA retail margin squeeze test was previously specified in the 2013 NGA Decision.
- 15.8 For FTTH services in the WLA Market and the WCA Markets we are proposing to continue with the wholesale margin squeeze approach given the uncertainty around take-up and costs for these services. The wholesale margin squeeze test between FTTH based VUA and FTTH based NGA Bitstream has been re-imposed in the WLA / WCA Market Review. As there is no material change to the test (or the underlying principles) in the context of FTTH we do not consider that an assessment is required as part of the RIA.
- 15.9 In the WLA market we are proposing a retail margin squeeze test between the price of WLA services provided in the footprint corresponding to the Urban WCA Market (which we propose should be deregulated) and the retail price for WLA retail services in the footprint corresponding to the Urban WCA Market. As this is a new regulatory obligation imposed in the WLA / WCA Market Review we

consider that the retail margin squeeze test in the WLA Market requires assessment as part of the RIA.

15.10 In addition, for CGA and NGA connection costs we are considering whether Eircom should recover these costs upfront or as part of the ongoing monthly rental charge. We have assessed the options available and the likely impact of each one on the various stakeholders in the RIA. Please see Chapter 13 of this document for further details.

15.2 Steps for assessing regulatory options

15.11 In assessing the available regulatory options, ComReg's approach to the RIA is based on the following five steps:

Step 1: describe the policy issue and identify the objectives

Step 2: identify and describe the regulatory options

Step 3: determine the likely impacts on stakeholders

Step 4: determine the likely impacts on competition

Step 5: assess the likely impacts and choose the best option

15.12 Each step is discussed in detail below.

15.3 Step 1: Describe the policy issue and identify the objectives

15.13 An important consideration for this RIA is the further specification of the cost orientation obligation for FTTC based NGA services.

15.14 As set out in the WLA / WCA Market Review, in Section 8 (FTTC based VUA) and in Section 13 (FTTC based Bitstream), we formed the preliminary view that cost orientation was the appropriate price control measure given the competition problems (in particular concerns regarding excessive pricing) identified in both the WLA Market and in the Regional WCA Market. We also considered that cost orientation is appropriate for the following reasons:

- (a) Demand for FTTC based NGA services is now easier to forecast given the historic penetration data that is available since Eircom began deploying its fibre network in 2013. Therefore, it would be easier to determine forecasted costs and volumes associated with the provision of FTTC based NGA services.

- (b) Recent price changes indicate that pricing constraints in relation to Eircom's retail and/or wholesale broadband prices, are of limited effectiveness and that existing price controls need to be updated to reflect new circumstances. In particular, the constraint posed by copper based broadband is likely to have diminished as evidenced by the reduction in LLU volumes and the switch from copper to fibre based services in the NGA footprint. This view is supported by the evidence available. Eircom has increased its NGA wholesale prices twice since the launch of NGA services in 2013. In July 2015 Eircom increased the VUA / NGA Bitstream monthly rental price by €2, from €17.50 to €19.50.¹³⁴ From 1 September 2016, Eircom increased the rental price for FTTC based NGA by €3.50, from €19.50 to €23, and the monthly rental price for FTTH based NGA by €3.¹³⁵ Similarly, at a retail level Eircom increased its retail broadband prices for standalone NGA products by circa €5 (incl. VAT).¹³⁶ These pricing developments demonstrate that Eircom's prices do not appear to be effectively constrained at a retail or wholesale level, in the presence of the existing form of price regulation.
- (c) A cost orientation obligation for FTTC based NGA services would ensure a consistent regulatory approach with the pricing of current generation SLU and LLU, which is cost oriented pursuant to the 2010 WPNIA Decision and as more recently further specified in the 2016 Access Pricing Decision. Since NGA networks are in competition with copper networks, the consistency of pricing approaches between FTTC based wholesale products and current generation wholesale products helps operators to make an efficient choice as to the most optimal wholesale product.
- (d) A cost orientation obligation for FTTC based NGA should also provide the appropriate investment signals to market participants (i.e. that the prices set will incentivise efficient firm behaviour). Efficient behaviour should result in the economy getting the greatest value from its resources and should benefit end users.
- (e) A cost orientation obligation should provide greater price certainty for market participants. Setting a cost oriented price for FTTC based VUA upfront provides certainty to the SMP operator as to what it has to do in order to ensure compliance with its obligations and also for the OAOs that use the regulated products as to what the price will be for the service it is buying. This compares with less price certainty for OAOs by way of the margin squeeze approach as Eircom has flexibility during the price control period to make changes to the wholesale price depending on changes by

¹³⁴ Please see Eircom's Bitstream price list at http://www.openeir.ie/Reference_Offers/?selectedtab=wbaro.

¹³⁵ Ibid.

¹³⁶ Please see second table at page 3 of <https://www.eir.ie/opencms/export/sites/default/content/pdf/pricing/Part3.1.pdf>

Eircom to the retail price. Please see Chapter 10 of the 2013 NGA Decision for further details on the current margin squeeze approach for NGA.

- (f) With regard to cost recovery, the cost orientation obligation takes into account the efficient investments made by the SMP operator and allows a reasonable rate of return on adequate capital employed, in line with Regulation 13 of the Access Regulations.
- 15.15 One of the key regulatory objectives of ComReg is to maximise viable infrastructure investment and to promote efficient infrastructure investment decisions and encourage OAOs to climb the investment ladder. This objective has been addressed in Chapter 5 of this document and more specifically in Chapter 6 and Chapter 7 of this document with regard to the pricing approach for FTTC based NGA services.
- 15.16 The objective of the proposed BU-LRAIC+ for FTTC based NGA services (VUA and NGA Bitstream) is to promote efficient infrastructure investment by alternative operators who may want to replicate the asset and to send the right signal to the market when networks need to be renewed (which is currently the case with the deployment of NGA networks). LRAIC+ includes appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. This approach is also consistent with the methodology applied in the Revised CAM (for the access network) in the 2016 Access Pricing Decision. Please see Chapter 5 of this document for further details.
- 15.17 In the WLA / WCA Market Review we proposed to continue with the obligation of cost orientation in relation to current generation Bitstream services. In this Draft Decision we are further specifying the cost orientation obligation such that we consider that a BU-LRAIC+ methodology (rather than the existing HCA methodology) should promote efficient infrastructure investment in the appropriate areas. The BU-LRAIC+ approach for current generation Bitstream and BMB services in Regional Area 1 promotes efficient infrastructure investment to allow existing competition to grow, including a potential move to NGA services, while encouraging other alternative operators to enter the market.
- 15.18 For Regional Area 2, where no new investments have taken place and where the NBP is likely to be present in the medium to long-term, we consider that it timely to streamline the costing methodology across the Regional WCA Market (Regional Area 1 and 2). In Regional Area 2 we recognise that assets that are not likely to be replicated for the purposes of a NGA rollout i.e., reusable assets (ducts, poles, trenches, chambers) should be determined by reference of actual costs from the SMP operator's accounts. On the other hand, assets which are likely to be replicated in Regional Area 2 for the rollout of NGA services i.e., non-reusable assets (cables, cabinets, final drops, MDFs, etc.) should be set

by reference to replacement costs or BU-LRAIC+ in order to send the appropriate signals for NGA investment. This approach is also consistent with Paragraph 30 (BU-LRAIC+ approach) and Paragraph 34 (Indexed RAB for Reusable Assets) of the 2013 Recommendation. Please see Chapter 5 of this document for further details.

- 15.19 As set out in Chapter 10 (WLA Market) and Chapter 11 (WCA Markets) of this document, a retail margin squeeze obligation is also required with regard to NGA services (FTTC and FTTH) and current generation services, in addition to the proposed cost orientation obligation for FTTC based NGA services.
- 15.20 Given Eircom's proposed SMP designation in the WLA Market¹³⁷ and in the Regional WCA Market¹³⁸ there are concerns that it could leverage its market power into adjacent vertically or horizontally related markets through price and non-price means with the effect of foreclosing or excluding competitors in downstream retail and/or related wholesale markets. Eircom, as a vertically-integrated operator with SMP in both the WLA Market and in the Regional WCA Market, has the ability and incentive to use its market power in these markets to affect the competitive conditions in downstream wholesale and/or retail markets, in particular, through its ability to control the key inputs used by wholesale customers of Eircom — which then compete against Eircom in such markets. This could result in a distortion of or restriction in competition in these downstream markets, ultimately resulting in harm to end users, potentially in the form of higher prices, lower output/sales, reduced quality or end user choice. Therefore, we proposed that a margin squeeze obligation in the WLA Market and in the Regional WCA Market was also required.
- 15.21 In particular, in the WLA Market Eircom could price its retail broadband services in those areas corresponding to the Urban WCA Market in such a way that it could foreclose other operators using WLA wholesale inputs in similar geographic areas by way of a margin squeeze. In this Draft Decision we are further specifying the principles that should apply to the WLA retail margin squeeze test while recognising that Eircom faces competition from other large operators in those exchanges corresponding to the footprint of the Urban WCA Market.
- 15.22 Even if cost oriented prices for FTTC based NGA services in the WLA Market / Regional WCA Market as well as for CGA Bitstream services in the Regional WCA Market would prevent Eircom from increasing its wholesale charge, Eircom can, by reducing its retail price, ensure that certain OAOs may not be able to match the prevailing retail price and still earn sufficient margin to cover their own costs. In essence, OAOs may not be able to replicate Eircom's retail

¹³⁷ Eircom had a market share of almost 100% in Q1 2016.

¹³⁸ Eircom had a market share in excess of 80% as at Q1 2016.

price and as a result Eircom could foreclose the markets. Any OAOs that had been forced out of the market(s) due to these price reductions would be inhibited from returning even when margins are restored if they feared that Eircom would respond by repeating the retail price reductions to squeeze margins again.

15.23 In choosing remedies we have taken account of Section 12 of the Communications Regulation Act 2002 (as amended), Regulation 6(1) of the Access Regulations, Regulation 8(6) of the Access Regulations, Regulation 13 of the Access Regulations and Regulation 16 of the Framework Regulations. Set out below is a discussion on how each of the relevant objectives from the Access and Framework Regulations and the Communications Regulations Act 2002 (as amended) are addressed in the context of the proposed pricing approach set out in this Draft Decision.

15.3.1 Section 12 of the Communications Regulations Act 2002 (as amended)

15.24 Our objectives as set out in Section 12 of the Communications Regulations Act 2002 (as amended) aims to:

- (i) Promote competition and in particular to encourage efficient investment in infrastructure and promoting innovation;*
- (ii) Contribute to the development of the internal market;*
- (iii) Promote the interests of users within the Community and in particular to encourage access to the internet at a reasonable cost to end-users.*

Promote Competition

15.25 With respect to the competition objective, we must consider the trade-off between promotion of competition in the short term, in the medium term and in the long term. While infrastructure-based competition, when each competitor constructs its own local loop, provides the OAOs with more freedom it requires significant investment to duplicate infrastructures in their entirety, thus this option will rarely be chosen by OAOs in the short to medium term. Service-based competition, when OAOs use different access services, is more likely to develop in the short and medium term. In order to promote competition in the short to medium term, ComReg should ensure that the difference between wholesale access prices and retail prices is not so small that it could create a margin squeeze. On the other hand the access price should not be set too low as it may deter investments in the long term.

15.26 If the price for WCA services is set too low compared to WLA services, OAOs will not upgrade their network to reach those exchanges that benefit from LLU / VUA which is consistent with the ladder of investment principle. If the price for WLA services is set too low OAOs may not have sufficient incentives to invest in NGA networks. Therefore, in choosing the appropriate pricing approach it is important to balance these objectives.

FTTC based VUA:

15.27 For FTTC based VUA (including EVDSL, Remote VUA and Local VUA) we propose to set the price based on those exchanges where there are active FTTC and EVDSL working lines. In those areas where active FTTC and EVDSL lines are deployed the BU-LRAIC+ methodology ensures that where competition is developing and where copper is likely to be replaced by private investors that efficient infrastructure investment is encouraged in order to inform investors' decisions. The objective of promoting efficient infrastructure investment needs to be sent to incentivise the investment on the E-side. In addition, it would be inefficient for operators to build new civil infrastructure such as duct and poles when it is possible to re-use the existing assets by buying access to them from Eircom. By using Eircom's Indexed RAB for the Re-usable Assets Eircom should recover its actual efficient investment in these assets rather than the higher costs that would be required to build such infrastructure today. The proposed treatment of poles and ducts derived from the Revised CAM should send the correct investment signals to Eircom with regard to the replacement of ducts and poles in Eircom's existing network.

FTTC based Bitstream:

15.28 For FTTC based Bitstream we propose to set the price based on those Local VUA sites yet to be unbundled i.e., 48 Local VUA sites (or 397 exchanges) in the Regional WCA Market.

15.29 The BU-LRAIC+ methodology, adjusted for the scale of a SEO with regard to Bitstream specific costs, ensures that the price for FTTC based Bitstream promotes efficient infrastructure investment so as to inform investors' decisions, particularly towards investment in VUA. This approach also ensures that the appropriate investment signals are provided in the relevant areas i.e., in those exchanges which have not been unbundled to date but which are commercially viable for alternative operator investment.

15.30 In addition, we propose that Eircom should have flexibility to reduce the price for FTTC based VUA and NGA Bitstream so long as Eircom seeks ComReg's approval to proceed and it does not price below the specified floor set out in Chapter 12 of this document. This approach should ensure that where Eircom faces competition in certain areas from alternative operators that it has scope

to reduce its price in order to remain competitive. We also propose that where Eircom reduces the price of its FTTC based VUA service, the reduction should also apply to the FTTC based Bitstream services in order to ensure a sufficient economic space between both products so that OAOs are always encouraged to invest in VUA. The same would apply where a price reduction is proposed to FTTC based Bitstream, the reduction would also have to apply to FTTC based VUA. Please see Chapter 12 of this document for further details.

Current generation Bitstream:

- 15.31 For current generation Bitstream and BMB services we propose to amend the pricing methodology from HCA approach to BU-LRAIC+. Please see paragraphs 15.17 and 15.18.

WLA services in footprint corresponding to Urban WCA Market:

- 15.32 The proposed retail margin squeeze test in the WLA Market between the price for WLA services provided in the footprint corresponding to the Urban WCA Market and retail services delivered by WLA inputs in the same footprint should ensure that Eircom cannot price its retail broadband services in those areas corresponding to the Urban WCA Market in such a way that it could foreclose other operators using WLA wholesale inputs in similar geographic areas. ComReg considers that competition is protected by ensuring that operators have a sufficient economic space between retail prices and wholesale prices so that they can compete with Eircom and still make a margin. In the case of FTTH services, this is also necessary as a control against excessive pricing as no cost orientation obligation has been proposed for these services in the WLA / WCA Market Review. A test solely against WCA services would be insufficient because FTTH based services in the Urban WCA market are proposed to be de-regulated. In this circumstance, it would be possible to pass a margin squeeze test between WLA and WCA services and yet still create a margin squeeze against retail services thereby foreclosing competition in the WLA Market.

Encourage efficient investment in infrastructure and promoting innovation

- 15.33 Access prices should be set in such a way that OAOs are encouraged to make efficient infrastructure investment decisions.
- 15.34 The priority between short-term and long-term investments may vary depending on the specific conditions of each wholesale product and geographical area.
- 15.35 In densely populated areas there is infrastructure-based competition (mainly from Virgin Media but potentially from SIRO (Vodafone/ESB) in the future) as well as competition relying on LLU/Line Share. There is also some service-based competition based solely on Eircom's copper local loop i.e., WCA

services. Outside the densely populated areas, infrastructure based competition are unlikely absent state funding. However, service based competition relying on WCA is present. Therefore, in areas where no infrastructure based competition is likely to develop investment signals are less important and cost recovery is more relevant.

- 15.36 For OAOs, visibility and certainty regarding future wholesale prices is important so that operators can progress their investment plans. For the Incumbent it is necessary to ensure that it recovers at least its efficiently incurred costs plus a reasonable rate of return through the wholesale access prices otherwise there is a risk that the Incumbent could stop maintaining its copper network.
- 15.37 As set out in Chapter 7 of this document, the proposed pricing approach for FTTC based NGA services allows Eircom to recover its BU-LRAIC+ costs (and Eircom's Indexed RAB for Reusable Assets) in areas where the services are likely to be deployed.
- 15.38 The BU-LRAIC+ approach should ensure that Eircom is incentivised to continue to invest and upgrade its network in an efficient manner while this approach maintains efficient infrastructure investment signals for OAOs in the relevant areas.
- 15.39 For current generation Bitstream and BMB services the BU-LRAIC+ approach should promote efficient infrastructure investment incentives to allow existing competition to grow, including a potential move to NGA services, while encouraging other alternative operators to enter the market (particularly in Regional Area 1).
- 15.40 The proposed WLA retail margin squeeze test should protect operators that rely on WLA services in those exchanges corresponding to the footprint of the Urban WCA Market, while allowing them to compete with Eircom and still make a margin.

Contribute to the development of the internal market

- 15.41 In this Draft Decision we have taken utmost account of the 2013 Recommendation issued by the European Commission.
- 15.42 In setting the prices for FTTC based NGA services we have taken into account that Reusable Assets (ducts, poles) should be valued on the basis of Eircom's Indexed RAB as these assets are likely to be reused in the deployment of NGA. For Non-reusable Assets (cables, joints, etc.) we have recognised the need to provide the appropriate efficient infrastructure investment signals and accordingly we have proposed the BU-LRAIC+ cost approach. The principles of BU-LRAIC+ for Non-reusable Assets and the Indexed RAB for Reusable Assets are in line with the 2013 Recommendation.

- 15.43 For current generation Bitstream and BMB services we propose to amend the current costing methodology from HCA to BU-LRAIC+. The BU-LRAIC+ approach is in line with Paragraph 30 of the 2013 Recommendation.
- 15.44 The proposed principles of the retail margin squeeze test for WLA services in the footprint corresponding to the Urban WCA Market are largely consistent with the margin squeeze principles prescribed in Annex II of the 2013 Recommendation. Please see Chapter 10 of this document for further details regarding the specific margin squeeze principles proposed.
- 15.45 Further to Regulations 13 and 14 of the Framework Regulations, the draft measures will be made accessible to the Commission, the Body of European Regulators for Electronic Communications (“**BEREC**”) as well as other national regulatory authorities (“**NRAs**”) in other EU Member States.
- 15.46 We will consider all responses received to this Draft Decision before proceeding to a final decision.

Promote the interests of users within the Community

- 15.47 A cost orientation price control for FTTC based NGA services should help to facilitate greater regulatory certainty for longer-term competitive entry and expansion. This should have positive implications for the price, choice and quality of services ultimately delivered to end-users.

Encourage access to the internet at a reasonable cost to end users

- 15.48 ComReg is required to take all reasonable measures to encourage access to the internet at reasonable cost to users. The cost orientation obligation for FTTC based NGA services reflects the fact that Reusable Assets are not likely to be replicated and therefore cost recovery is important rather than promoting efficient infrastructure investment. On the other hand in the context of Non-Reusable Assets we have applied the BU-LRIAC+ approach in order to encourage operators to invest as appropriate. This should ensure that the prices for NGA services are not excessive while also ensuring that the appropriate investment signals are provided to Eircom and OAOs.

15.3.2 Regulation 6(1) of the Access Regulations

- 15.49 Regulation 6(1) of the Access Regulations provides that the Regulator shall acting in pursuit of its objectives set out in Section 12 of the Communications Regulation Act 2002 (as amended) and Regulation 16 of the Framework Regulations, encourage and, where appropriate, ensure adequate access, interconnection and the interoperability of services in such a way as to:

- a) Promote efficiency;

- b) Promote sustainable competition;
- c) Promote efficient investment and innovation; and
- d) Give the maximum benefit to end-users.

15.50 Please refer to paragraphs 15.73 to 15.75 for discussion on promoting efficiency.

15.51 Please refer to paragraphs 15.25 to 15.32 for discussion on promoting competition.

15.52 Please refer to paragraphs 15.33 to 15.40 for discussion on investment and innovation.

15.53 Please refer to paragraphs 15.47 to 15.48 regarding the benefits to end-users.

15.3.3 Regulation 8(6) of the Access Regulations

15.54 Regulation 8(6) of the Access Regulations provides that:

Any obligations imposed in accordance with this regulation shall –

- (a) Be based on the nature of the problem identified,*
- (b) Be proportionate and justified in light of the objectives laid down in section 12 of the 2002 Act and Regulation 16 of the Framework Regulations, and*
- (c) Only be imposed following consultation in accordance with Regulation 12 and 13 of the Framework Regulations.*

Based on the nature of the problem identified:

15.55 In the WLA / WCA Market Review ComReg identified the competition problems associated with the WLA market. The competition problems included exploiting end users by virtue of its SMP position e.g. excessive pricing, leveraging its market power into adjacent vertically or horizontally related markets and foreclosing or excluding competitors such as to protect its existing dominance on the market or markets in question. Please refer to Section 7 of the WLA / WCA Market Review for further details.

15.56 In the WLA / WCA Market Review ComReg identified the competition problems associated with the WCA Markets. ComReg considered that Eircom would have the ability and incentive to set excessive prices in the Regional WCA Market which would exploit retail broadband users and potentially harm competition from OAOs relying on Eircom's WCA inputs. In addition, ComReg identified scope and incentive for the SMP operator to engage in possible price-related leveraging through pricing its upstream and downstream services in such a way

as to give rise to an insufficient wholesale/retail margin which would impede effective downstream competition. Please refer to Section 12 of the WLA / WCA Market Review for further details.

Proportionate and justified

- 15.57 ComReg considers that the pricing approach for FTTC based NGA services is justified based on the detail, reasoning and information provided in this Draft Decision. Please refer to Chapter 5 of this document for justification of the costing methodology and Chapters 6 and 7 of this document for justification of the pricing approach for FTTC based NGA services. The BU-LRAIC+ approach for Bitstream and BMB services is justified at Chapter 5 of this document. In addition, please refer to Chapter 10 of this document for justification of the WLA retail margin squeeze test.
- 15.58 This Draft Decision should provide transparency to the industry in terms of FTTC based NGA services insofar as Eircom can recover no more than the BU-LRAIC+ for Non-Reusable Assets and Eircom's Indexed RAB for Reusable Assets based on those areas with active FTTC lines deployed.
- 15.59 ComReg considers that this proposed approach is proportionate and justified as it maintains efficient infrastructure investment signals in those towns/cities in densely populated areas (where it is most relevant).
- 15.60 For current generation Bitstream and BMB services, ComReg considers that a price which is reflective of the BU-LRAIC+ methodology should encourage investment in Regional Area 1.
- 15.61 In addition, this Draft Decision should provide reasonable price certainty and predictability to operators in the WLA Market and the WCA Markets with regards to FTTC based NGA services, where prices will be set with reference to costs. We are also proposing that changes to FTTC based NGA prices would be subject to notification procedures to ComReg where Eircom would be required to demonstrate how the proposed revised charge complies with its obligation of cost orientation as specified in this Draft Decision. This allows ComReg sufficient time to understand any price changes and to ensure that these changes are in line with Eircom's regulatory obligations. It also allows OAOs to assess the likely impact of the changes in terms of its business case and to allow the OAOs time to notify its end users of a price change, where appropriate. Similar notification procedures are proposed for wholesale and / or retail price changes as a result of the proposed margin squeeze obligations. Please see Chapter 12 of this document.
- 15.62 In the WLA Market, the proposed retail margin squeeze test in the footprint corresponding to the Urban WCA Market should prevent Eircom from pricing its

retail broadband services in those areas corresponding to the Urban WCA Market in such a way that it could foreclose other operators using WLA wholesale inputs in similar geographic areas by way of a margin squeeze.

Only be imposed following consultation

- 15.63 ComReg will consider all responses it receives to this Draft Decision and, based upon those responses it may amend some of its views before it proceeds to a final decision.

15.3.4 Regulation 13 of the Access Regulations

- 15.64 According to Regulation 13(1) of the Access Regulations, ComReg may:

“...impose on an operator obligations relating to cost recovery and price controls, including obligations for cost orientation of prices and obligations concerning cost accounting systems, for the provision of specific types of access or interconnection in situations where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessively high level or may apply a price squeeze to the detriment of end users.”

- 15.65 The requirements set out in Regulation 13(1) of the Access Regulations have been discussed in the WLA / WCA Market Review at Sections 8 and 13.

- 15.66 Regulation 13(2) of the Access Regulations provides that:

“To encourage investments by the operator, including in next generation networks, the Regulator shall, when considering the imposition of obligations under paragraph (1), take into account the investment made by the operator which the Regulator considers relevant and allow the operator a reasonable rate of return on adequate capital employed, taking into account any risks involved specific to a particular new investment network project.”

- 15.67 As set out in Chapter 5 of this document, the proposed BU-LRAIC+ approach should allow Eircom to recover its replacement costs in the case of Non-Reusable Assets and Eircom’s Indexed RAB costs in the context of Reusable Assets (ducts and poles). This provides the appropriate investment signals for Eircom and other operators in that assets that need to be replaced for the provision of NGA services are based on BU-LRAIC+ (to provide efficient infrastructure investment incentives) while assets that can be reused for NGA are based on the accounting value from the SMP operators accounts with an indexation factor applied. The fixed line telecoms WACC of 8.18% is also applied to the costs in the NGA Cost Model to allow for a reasonable rate of return in line with Regulation 13(2) of the Access Regulations. In the context of Eircom’s FTTC (or EVDSL) deployment we consider that there is no need to

apply a risk premium. As stated in Section 6 of the European Commission Recommendation in 2010 on NGA¹³⁹:

“Investment into FTTN, on the other hand, which is a partial upgrade of an existing access network (such as for example VDSL), normally has a significantly lower risk profile than investment into FTTH, at least in densely populated areas. In particular, there is less uncertainty involved about the demand for bandwidth to be delivered via FTTN/VDSL, and overall capital requirements are lower. Therefore, while regulated prices for WBA based on FTTN/VDSL should take account of any investment risk involved, such risk should not be presumed to be of a similar magnitude as the risk attaching to FTTH based wholesale access products. When setting risk premia for WBA based on FTTN/VDSL, NRAs should give due consideration to these factors...”

- 15.68 It is recognised that there is a reduced risk for FTTC deployment and since Eircom’s FTTC deployment has already started (since 2013), it is easier to make predictions on penetration rates, and the number of copper lines is relatively stable. Therefore, we propose that there is no need to apply a risk premium for FTTC or EVDSL deployment.
- 15.69 For FTTH, we propose a margin squeeze obligation (rather than cost orientation). Therefore, there is no need to estimate costs of the access network. At the same time, the assets relevant for the FTTH margin squeeze obligation are not a part of the access network but rather part of the core network. These assets are not therefore subject to a risk premium.
- 15.70 The retail margin squeeze test for WLA services in the footprint corresponding to the Urban WCA Market is based on EEO costs. This is discussed in Chapter 10 (subsection 10.4.2) of this document. The EEO costs are consistent with a cost orientation obligation as they ensure cost recovery for Eircom, as the EEO cost base uses Eircom’s costs (adjusted for efficiencies).¹⁴⁰ In principle, ComReg believes that the OAOs costs should be used in the retail test but accurate verifiable OAO data is difficult to obtain. Therefore, in the absence of robust and audited OAO cost data ComReg uses Eircom’s audited costs. The fixed line telecoms WACC of 8.18% is also applied to the costs which should allow for a reasonable rate of return in line with Regulation 13(2) of the Access Regulations.
- 15.71 Regulation 13(3) of the Access Regulations provides that:

¹³⁹ <http://eur-lex.europa.eu/LexUriServ/%20LexUriServ.do?uri=OJ:L:2010:251:0035:0048:en:PDF>

¹⁴⁰ REO/SEO cost base assumes a smaller operator than Eircom with less scale and scope and therefore with a different cost base to Eircom.

“The Regulator shall ensure that any cost recovery mechanism or pricing methodology that it imposes under this Regulation serves to promote efficiency and sustainable competition and maximise consumer benefits. In this regard, the Regulator may also take account of prices available in comparable competitive markets.”

15.72 Each of these objectives are discussed below.

Promote efficiency

15.73 A cost oriented price control aims to ensure that prices do not exceed an appropriate level of efficient costs where there is a risk that competitive pressure alone would not achieve this outcome.

15.74 There are three forms of efficiency including:

- Allocative Efficiency: Where prices of different products results in an optimum allocation of resources to end-users;
- Productive Efficiency: Where the cost of producing the products is minimised;
- Dynamic Efficiency: This refers to the efficiency of investor and end user behaviour over time.

15.75 ComReg believes that any price control imposed needs to strike a balance between these three forms of efficiency. Allocative and productive efficiency are essentially static concepts taking into account the level of costs to deliver products at a particular point in time. In terms of productive efficiency, ComReg believes that the sequential nature of investment decisions, when assessing whether the level of costs reported is efficiently incurred, needs to be considered in the price control. The BU-LRAIC+ approach already assumes a level of efficiency (as it assumes a brand new network) therefore no further adjustments are required.

Promote sustainable competition

15.76 Please refer to paragraphs 15.25 to 15.32.

Maximise consumer benefits

15.77 Please refer to paragraphs 15.47 to 15.48.

15.78 Regulation 13(4) of the Access Regulations provides that:

“Where an operator has an obligation under this Regulation regarding the cost orientation of its prices, the burden of proof that charges are derived from

costs, including a reasonable rate of return on investment shall lie with the operator concerned.....”

- 15.79 In the event that Eircom proposes to change the price for FTTC based NGA services or current generation Bitstream services, it must demonstrate to ComReg that the revised price complies with the specified cost measures set out in this Draft Decision, consistent with Regulation 13(4) of the Access Regulations. Please see Chapter 12 of this document regarding the proposed flexibility for reducing FTTC based NGA prices subject to specified conditions.

15.3.5 Regulation 16 of the Framework Regulations

- 15.80 While some of the main requirements / objectives of Regulation 16 of the Framework Regulations have already been addressed above as part of the discussion on Regulation 8 of the Access Regulations, Section 12 of the Communications Regulation Act 2002 (as amended) and / or Regulation 13 of the Access Regulations, set out below is some other key requirements associated with Regulation 16 which have not been addressed so far as part of the discussions above.

Promoting regulatory predictability by ensuring a consistent approach over appropriate review periods:

- 15.81 The proposed cost orientation obligation for FTTC based NGA services should ensure pricing consistency (based on cost orientation) across the main wholesale services provided on Eircom’s wholesale access network, in particular, consistency with the pricing approach (BU-LRAIC+) adopted in the 2016 Access Pricing Decision.
- 15.82 The proposed retail margin squeeze test for WLA services in the footprint of exchanges corresponding to the Urban WCA Market should be similar to the proposed retail tests imposed on Eircom in the context of NGA and current generation Bitstream services in the Regional WCA Market.
- 15.83 The proposed inclusion of connection costs in the rental charges for CGA Bitstream and NGA services is consistent with the approach taken in the 2016 Access Pricing Decision where we included connection costs associated with PSTN in the SB-WLR rental price. Please see Chapter 13 of this document for further details.

Taking due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within the State:

- 15.84 As set out in detail in Chapter 4 of this document, we recognise that there may be varying structural and competitive conditions prospectively between the more densely populated areas (or Regional Area 1) and rural areas (or Regional

Area 2). In the 2013 Bundles Decision the concept of larger exchange area ('LEA') was developed, recognising different competitive conditions between exchanges in urban areas (or LEA) and in rural areas (known as Outside the LEA). However, more recently in the WLA / WCA Market Review we have proposed to deregulate a number of competitive exchanges in the LEA (known as the Urban WCA Market). In Chapter 4 of this document we discuss how these deregulated exchanges in the Urban WCA Market have been excluded from the old LEA and Outside the LEA to derive the newly formed Regional Area 1 and Regional Area 2 in the regulated Regional WCA Market.

- 15.85 Our proposed pricing approach for FTTC based VUA (including EVDSL) allows Eircom to recover the BU-LRAIC+ costs for Non-reusable Assets and Eircom's Indexed RAB for Reusable Assets based on the footprint of Eircom's active FTTC and EVDSL deployment. We consider that this ensures that the appropriate investment signal is provided in the relevant areas. Please refer to Chapter 7 of this document for a further discussion on the pricing options for FTTC based VUA.
- 15.86 For FTTC based Bitstream we recognise that efficient infrastructure investment signals are only relevant in those exchanges in the Regional WCA Market which are currently not unbundled. Please see Chapter 7 of this document for a further discussion on the pricing options for FTTC based Bitstream.
- 15.87 Regulation 16(2) of the Framework Regulations requires that ComReg applies objective, transparent, non-discriminatory and proportionate regulatory principles. The obligations contained in the Draft Decision are:
- objectively justifiable, in that the obligations facilitate and encourage fair, reasonable and timely access to Eircom's network and therefore promotes competition to the benefit of end users;
 - not unduly discriminatory, in that we have reached a preliminary view in the WLA /WCA Market Review where Eircom has been found to have SMP in the relevant markets;
 - proportionate, in that the proposed obligations are targeted at addressing the market power that Eircom holds in the relevant markets and allows Eircom to recover its efficient costs (including a reasonable rate of return); and
 - transparent, in that the obligations set out in this Draft Decision are clear with regard to the pricing approach for FTTC based NGA services and current generation Bitstream / BMB services as well as the imposition of the margin squeeze tests.

- 15.88 In particular, Regulation 16(2)(d) of the Framework Regulations relates to the promotion of efficient investment and ensuring that investment risk is appropriately accounted for.¹⁴¹ Promoting investment and innovation is addressed at paragraphs 15.33-15.40. The point regarding the risk associated with network investments is addressed at paragraphs 15.67-15.69.
- 15.89 Regulation 16(2)(f) relates to the lifting of regulation where there is sustainable competition.¹⁴² As noted in Section 10 of the WLA / WCA Market Review, ComReg is of the preliminary view that no undertaking is likely to have SMP in the Urban WCA Market.
- 15.90 ComReg's preliminary view, as set out in the WLA / WCA Market Review, is predicated on a number of factors, including a forward-looking assessment of the competitive constraints arising in the Urban WCA Market through the presence of BT, as well as from a number of retail service providers. Such constraints are supported through upstream regulation in the WLA Market and in the presence of the regulatory obligations imposed in the WLA Market.
- 15.91 In the WLA / WCA Market Review ComReg proposes to withdraw existing regulatory obligations associated with the Urban WCA Market given its preliminary finding that no service provider has SMP. In this respect, ComReg proposes that existing obligations, other than those set out in Section 14 of the WLA / WCA Market Review, would be withdrawn at the date at which ComReg makes its final decision on the WLA / WCA Market Review, while it is proposed that Eircom would be subject to regulation in the WLA Market. As set out in Section 7 and Section 8 of the WLA / WCA Market Review we have identified a number of competition problems relating to the WLA Market including potential leverage and excessive pricing by Eircom. These competition problems are summarised in Chapter 10, paragraphs 10.4-10.9 of this document. Price regulation in the WLA Market should protect the investment(s) made by alternative OAOs using WLA wholesale products.

15.4 Step 2: Identify and describe the regulatory options

- 15.92 The regulatory options considered in this Draft Decision are as follows:

¹⁴¹ Regulation 16(2)(d) of the Framework Regulations states that: "*promoting 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...*"

¹⁴² Regulation 16(2)(f) of the Framework Regulations states that: "*imposing ex-ante regulatory obligations only where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled*"

- Options for determining the appropriate costing methodology for FTTC based NGA services;
- Options for determining appropriate costing methodology for current generation Bitstream and BMB services;
- Options for determining the appropriate geographic scope for FTTC based VUA (including EVDSL);
- Options for determining the appropriate geographic scope for FTTC based Bitstream;
- Options for determining the appropriate principles for the retail margin squeeze test for WLA services in the footprint corresponding to the Urban WCA Market;
- Options for determining how CGA / NGA connection costs should be recovered by Eircom.

15.4.1 Options for determining appropriate costing methodology for FTTC based NGA services

15.93 The following two options were considered in terms of the appropriate costing methodology for FTTC based NGA services:

- BU-LRAIC+ or
- Eircom's HCAs.

15.94 Please refer to Chapter 5 of this document for a detailed discussion on the costing methodology options and our preferred approach.

15.4.2 Options for determining appropriate costing methodology

15.95 The following two options were considered in terms of the appropriate costing methodology for current generation Bitstream and BMB services:

- BU-LRAIC+ or
- Eircom's HCAs.

15.96 Please refer to Chapter 5 of this document for a detailed discussion on the costing methodology options and our preferred approach.

15.4.3 Options for determining the appropriate geographic scope for FTTC based VUA

15.97 If the access price is too high in areas where infrastructure investment is also unlikely to develop (as the deployment cost for each line is high i.e., in rural areas), this would not be desirable due to the detrimental long-term impact on end users arising from a lack of competition, as competition from operators acting as resellers may also be dampened. On the other hand the access price should not be too low, especially in towns/cities in more densely populated areas, as it could deter investments in the long term in infrastructure-based competition. Therefore, consideration of each pricing option for setting the prices for FTTC based VUA (including EVDSL) is important in order to provide the appropriate investment signals in the relevant areas.

15.98 In Chapter 7 of this document we considered the following options:

- National price based on costs at all VUA sites i.e., active and non-active FTTC sites;
- National price based on Eircom's active FTTC and EVDSL footprint;
- National price based on Eircom's active FTTC footprint only; or
- National price based on a footprint consistent with the one used to set the LLU price in the 2016 Access Pricing Decision.

15.99 Please refer to Chapter 7 of this document for the details of the options and our preferred approach.

15.4.4 Options for determining the appropriate geographic scope for FTTC based Bitstream

15.100 In line with Section 12 of the Communications Regulations Act 2002 (as amended) and Regulation 16 of the Framework Regulations, ComReg considers that the objective of encouraging infrastructure investment and competition by Eircom and other operators is relevant in the Regional WCA Market. However, a large amount of the Local VUA sites are already unbundled by other operators. Our objective is to provide the right investment signals in those exchanges in the Regional WCA Market where new investment is likely to occur, which is equivalent to those exchanges that have not been unbundled to date.

15.101 Our objective is to encourage VUA investment in those Local VUA sites not yet unbundled in the Regional WCA Market i.e., 48 exchanges (or 397 exchanges).

15.102 Therefore, we consider the following options regarding the FTTC based Bitstream price:

- National price based on costs at all Local VUA i.e., 141 Local VUA sites; or
- National price based on those Local VUA sites in the Regional WCA Market which have not yet been unbundled i.e., 48 sites (or 397 exchanges).

15.103 Please see chapter 7 of this document for the details of the options and our preferred approach.

15.4.5 Options for determining appropriate principles for the WLA retail margin squeeze test

15.104 The following are the main options considered for determining the appropriate principles for the WLA retail margin squeeze test:

- (i) **Cost base:** The retail margin squeeze test should be based on either:
 - A SEO (or REO) cost base, which assumes that entrants are currently not likely to be as efficient as Eircom given that they cannot achieve the same scale; or
 - An entire EEO approach once the OAOs have achieved sufficient scale to encourage efficient entry.
- (ii) **Cost standard:** The retail margin squeeze test should take account of either:
 - The LRAIC+ costs; or
 - The ATC costs.
- (iii) **Assessment basis:** The retail margin squeeze test should be assessed either:
 - Portfolio: Eircom would have some flexibility to efficiently price discriminate on individual WLA products so long as Eircom recovers the overall wholesale and retail costs across the portfolio of products in the footprint corresponding to the Urban WCA Market; or
 - Product-by-product: Eircom would have to comply with the retail margin squeeze test for each WLA product individually.

15.105 Please refer to Chapter 10 of this document for a discussion on the principles for the WLA retail margin squeeze test and our preferred approach.

15.4.6 Options for recovery of CGA / NGA connection costs:

15.106 In Chapter 13 of this document we considered the following three options regarding the recovery of Eircom's connection costs for CGA and NGA services:

- Recover the connection costs upfront i.e., one-off charge;
- Recover the connection costs in the ongoing monthly rental;
- Recover the connection costs as combination of the two options above.

15.107 Please refer to Chapter 13 of this document for a discussion on the options and our preferred approach.

15.5 Step 3: Determine the likely impact on stakeholders

15.108 This section summarises the impact of the options above on the various stakeholders. We consider the potential impacts that could be incurred by Eircom in complying with the proposed obligations as well as the potential benefits that would accrue to Eircom, its wholesale customers and end users.

15.109 The likely impact on stakeholders is discussed under the following headings:

- Costing methodology for FTTC based NGA services / current generation Bitstream services;
- Geographic scope for FTTC based VUA (including EVDSL);
- Geographic scope for FTTC based Bitstream;
- Principles for the WLA retail margin squeeze test; and
- Cost recovery methods for CGA / NGA connection costs.

15.110 In Chapter 6 of the TERA Report, at Annex 6, we have taken into account as part of our assessment the likely impact on the various stakeholders of the reduction to the price for FTTC based VUA and FTTC based Bitstream, from the current prices to the proposed cost oriented prices. Please see the TERA report for the details.

A. Costing methodology for FTTC based NGA services / current generation Bitstream services

Option 1: BU-LRAIC+**(a) Impact on Eircom**

- This approach should promote efficient infrastructure investment by OAOs, in the appropriate area – Regional Area 1. This is particularly relevant for infrastructure based competition.
- This approach allows Eircom to recover its costs by reference to the replacement cost associated with the asset (rather than the actual efficient cost).
- This approach could allow Eircom to recover the cost of investments that may not have taken place / are not likely to take place in the future, in certain rural areas or Regional Area 2. This point is considered further below as part of the assessment of the appropriate footprint used to determine the price.
- This approach could allow Eircom to over recover costs in certain areas i.e., rural areas / Regional Area 2. However, Eircom's Indexed RAB for ducts, poles, trenches, etc. ensures that those assets that can be reused in Regional Area 2 are set by reference to actual costs rather than replacement costs. This point is considered further below as part of the assessment of the appropriate footprint used to determine the price.

(b) Impact on OAOs

- This approach should send the correct investment signals to the market place – especially in the more densely populated areas / Regional Area 1.
- This approach could mean that OAOs would be paying for the cost of investments that Eircom has not made or it not likely to make, in certain rural areas. Therefore, in the absence of alternative network competition the BU-LRAIC+ may result in excessive pricing in rural areas as it facilitates the recovery of hypothetical costs which may not actually have been incurred. However, Eircom's Indexed RAB for ducts, poles, trenches, etc. ensures that those assets that can be reused in Regional Area 2 are set by reference to actual costs rather than replacement costs. This point is considered further below as part of the assessment of the appropriate footprint used to determine the price.

(c) Impact on end users

- This approach in the absence of alternative network competition may encourage Eircom to “sweat” its assets in certain rural areas resulting in excessive prices relative to active investment without any benefit to end-users in terms of alternative platform based investment.

Option 2: Historic costs

(a) Impact on Eircom:

- This approach should ensure that Eircom does not materially under / over recover its costs as the value is linked to the actual investment made (for Reusable Assets and Non-reusable Assets) adjusted for efficiency plus a reasonable rate of return.
- This approach should ensure that Eircom does not price excessively as the price is set by reference to Eircom’s actual costs (adjusted for efficiencies plus a reasonable rate of return), especially with regard to rural areas.
- This approach would not provide Eircom with efficient infrastructure investment signals for the rollout of NGA services, particularly in more densely populated areas.

(b) Impact on OAOs:

- This approach does not provide OAOs with efficient infrastructure investment signals which are required to encourage alternative infrastructure investment, particularly in the densely populated areas.
- This approach should ensure that OAOs are only paying for actual investments made by Eircom in relation to Reusable Assets and Non-reusable Assets associated with the provision of FTTC based NGA services.

(c) Impact on end users

- This approach should ensure that retail prices are not excessive.

B. Appropriate geographic footprint for FTTC based VUA (including EVDSL):

Option 1: National price based on active and non-active FTTC lines (based on BU-LRAIC+ methodology and Eircom’s RAB for Reusable Assets)

(a) Impact on Eircom

- This approach may lead to over recovery of costs by Eircom as it will include exchanges where active FTTC may not be deployed;
 - The BU-LRAIC+ costs applied to the non-active FTTC sites may over-compensate Eircom relative to its actual investment;
 - This approach may not send the appropriate signals to Eircom, especially regarding the promotion of efficient infrastructure investment in more rural areas and lead to over-recovery of costs by Eircom.
- (b) Impact on OAOs
- This approach results in a higher FTTC based VUA price for OAOs – as OAOs are paying for investments that did not take place / may not take place i.e., in those non-active FTTC exchanges in more rural areas.
 - This approach may send the wrong investment signal to OAOs in terms of efficient investment – this approach derives a higher national price than is required to promote efficient infrastructure investment especially in densely populated areas. Therefore, this approach could deter OAOs from investing in areas where such investment is commercially viable.
- (c) Impact on end users
- This approach may result in higher costs being passed onto end-users by OAOs.

Option 2: National price based on exchanges with active FTTC and EVDSL lines (based on BU-LRAIC+ methodology and Eircom's RAB for Reusable Assets)

- (a) Impact on Eircom
- This approach means that the price reflects the BU-LRAIC+ costs (and Eircom's indexed RAB for Reusable Assets) in areas with FTTC and EVDSL active lines only– this should promote efficient infrastructure investment by Eircom in the appropriate area.
 - This approach should ensure that Eircom recovers its costs in areas where it has deployed active FTTC and EVDSL lines.
- (b) Impact on OAOs
- As this option gives a rental price for FTTC based VUA that is lower than Option 1 (based on the costs of FTTC based VUA for all VUA sites, both active and non-active) this should provide the appropriate signals to operators to invest.

- This approach should lead to a lesser dependence on Eircom's network and encourage suitable infrastructure based competition in the long term.
- (c) Impact on end users
- This should create more competition and choice for end-users where OAOs invest.

Option 3: National price based on LLU footprint in ComReg Decision D03/16 (with BU-LRAIC+ costs and Eircom's Indexed RAB for Reusable Assets)

- (a) Impact on Eircom
- This approach assumes that efficient infrastructure investment is only relevant in those 237 exchanges (known as the 'Modified LEA' in the 2016 Access Pricing Decision) which could mean that Eircom would not recover the entire costs of its current FTTC deployment.
 - As Eircom's rollout of FTTC and EVDSL (with active FTTC and EVDSL working lines) has already expanded beyond the 'Modified LEA' footprint, this approach would not promote investment of NGA in a broader and more expanded footprint (as per Option 2).
- (b) Impact on OAOs
- This approach may not encourage more extensive investment in FTTC based VUA by alternative operators given the limited footprint used.
- (c) Impact on end users
- This approach may not ensure continued investment and competition in the relevant areas.

C. Appropriate footprint for FTTC based Bitstream

Option 1: National price based on all Local VUA exchanges in the WCA Market (with BU-LRAIC+ methodology and with an adjustment to Bitstream costs to reflect SEO)

- (a) Impact on Eircom
- This approach results in lower costs and a lower price for FTTC based Bitstream (relative to the price for FTTC based VUA) and therefore OAOs may continue to rely on Eircom's network.

(b) Impact on OAOs

- This approach results in lower costs due to the higher economies of scale compared to Option 2 (below) and therefore the price is lower. Consequently, this approach does not favour VUA deployment, as the proposed price for FTTC based Bitstream would be lower relative to the FTTC based VUA price and the OAO would have less margin to exploit if it decided to adopt VUA rather than Bitstream.
- This approach is not likely to provide the right investment signals in those exchanges in the Regional WCA Market where new investment in VUA is likely to occur.

(c) Impact on end users

- This approach may not encourage further infrastructure investment (VUA deployment) in the relevant densely populated areas, which would not be to the benefit of end-users.

Option 2: National price based on Local VUA exchanges yet to be unbundled in the Regional WCA Market (with BU-LRAIC+ methodology and with an adjustment to Bitstream costs to reflect SEO)

(a) Impact on Eircom

- This approach means that the price reflects the BU-LRAIC+ costs in areas that have not been unbundled to date – this should provide the appropriate investment signals.

(b) Impact on OAOs

- This approach means the price for FTTC based Bitstream is based on those Local VUA sites in the Regional WCA Market which are yet to be unbundled i.e., 48 sites, and which should correspond with the footprint where new investment is most likely to take place by OAOs. Therefore, this should promote efficient infrastructure investment.
- This approach ensures that the appropriate investment signals are provided in the relevant areas i.e., in those exchanges which have not been unbundled to date but which are commercially viable for alternative operator investment.

(c) Impact on end users

- This should create more competition and choice for end-users in the relevant areas where OAOs invest.

D. Principles for WLA retail margin squeeze test in footprint corresponding to Urban WCA Market

Cost base:

Option 1: Retail margin squeeze test is based on an EEO cost base

a) Impact on Eircom:

- In general, an entire EEO assumption would imply that entrants could achieve similar economies of scale as Eircom. EEO is likely to assume lower retail costs for Eircom thereby requiring a lower retail margin.
- Consistent with the proposed deregulation of the Urban WCA Market in the WLA / WCA Market Review, it seems appropriate to recognise the presence of retail competition in those exchanges corresponding to the Urban WCA Market by way of implementing an EEO cost base;
- EEO approach is more consistent with cost orientation and ensures overall cost recovery for Eircom.

b) Impact on OAOs:

- An entire EEO cost base could make entry more difficult for new entrants, as the resulting gap between wholesale prices and retail prices would be lower, but may incentivise them to invest in their own infrastructure.

c) Impact on end-users:

- It should provide more choice if OAOs are incentivised to invest in their own infrastructure.

Option 2: Retail margin squeeze test is based on a SEO / REO cost base

a) Impact on Eircom:

- The SEO / REO assumes higher costs (compared to EEO) for Eircom which allows a lower wholesale access charge to be set by Eircom.
- The SEO / REO does not recognise the presence of alternative competing operators in the footprint corresponding to the Urban WCA Market.
- The SEO / REO should promote competition from OAOs who would face lower wholesale input costs from Eircom. This could increase the willingness of OAOs to enter the retail market using Eircom wholesale inputs.

b) Impact on OAOs:

- The SEO / REO assumes that entrants have not yet gained sufficient economies of scale compared to that of Eircom. By using the SEO / REO cost standard in the margin squeeze test, the resulting wholesale prices (assuming Eircom retail prices remain constant) would be lower compared to a margin squeeze based on the EEO cost standard. This approach may not be appropriate recognising the fact that we propose to deregulate the Urban WCA Market given the presence of alternative competing infrastructure.
- The SEO / REO approach should encourage entry to the retail market and allow existing smaller operators to grow their end user base, by giving rise to a greater space between retail prices and wholesale prices that enable OAOs to supply wholesale and retail services more competitively based on Eircom wholesale inputs.

c) Impact on end-users:

- The SEO / REO approach is likely to result in the medium/long-term (marginally) lower retail prices and more choice, due to higher levels of competition from OAOs.

Cost standard:**Option 1: Retail margin squeeze test is based on 'LRAIC plus'**

a) Impact on Eircom:

- This approach should allow Eircom to recover its average efficiently incurred directly attributable variable and fixed costs and an apportionment of joint and common costs.

b) Impact on OAOs:

- This approach should allow the recovery of the relevant common costs, as well as fixed and variable costs. This is the calculus faced by an operator when deciding whether to enter or expand a market. This should also ensure efficient entry, compared with the ATC cost standard.

c) Impact on end-users:

- This approach should allow the promotion of sustainable competition by OAOs to the benefit of end-users.

Option 2: Retail margin squeeze test is based on ATC

a) Impact on Eircom:

- This approach means a larger margin between products which is likely to mean easier entry potentially by an inefficient operator. If retail prices are constrained, the low wholesale charges could undermine the recovery of investment.
- ATC has been used to date for NGA pricing and for current generation Bitstream – therefore it ensures consistency across ladder of investment.
- ATC allows Eircom to recover all of its incurred costs.

b) Impact on OAOs:

- This approach may promote further entry given that it includes the costs of 'LRAIC plus' and some additional common costs. However, the ATC may encourage inefficient entry.

c) Impact on end-users:

- This approach may mean additional competition could reduce prices or improve choice.

Portfolio or product-by-product assessment:**Option 1: Retail margin squeeze test - Portfolio**

a) Impact on Eircom:

- This approach allows Eircom flexibility in its retail pricing, enabling Eircom to price some retail products above and others below ATC. This is likely to imply discounting on products where the competition is most intense, provided that other products are priced higher, such that the overall average revenue matches ATC. This flexibility may mean that Eircom can experiment with price differentiation for different product offerings which may improve efficiency, and under certain conditions, can be welfare maximising.

b) Impact on OAOs:

- This approach should encourage efficiency and promote competition between operators, in those exchanges corresponding to the Urban WCA Market.

c) Impact on end-users:

- This approach may mean improved efficiencies, in those exchanges corresponding to the Urban WCA Market.

Option 2: Retail margin squeeze test – Product-by-product analysis

a) Impact on Eircom:

- This approach should ensure sufficient margin for each offer, but would restrict the ability of Eircom to price products as flexibly as they would under the portfolio approach. Each WLA product in those exchanges corresponding to the Urban WCA Market would need to be priced at a retail level to meet the ATC requirement, which may limit the ability of Eircom to adjust pricing.

b) Impact on OAOs:

- This approach may enhance entry and competition, particularly for entrants that may lack economies of scope.

c) Impact on end-users:

- There may be some gains from improved competition of a product-by-product approach, but these may be offset by a reduction of efficiency.

E. Options for recovery of CGA / NGA connection costs by Eircom

Option 1: Recover the connection costs upfront:

a) Impact on Eircom:

- This approach ensures that Eircom is not exposed to any risk as it will recover all its investment upfront.
- This approach improves Eircom's cashflow.

b) Impact on OAOs:

- This approach better reflects the costs incurred by a new market entrant that would deploy an end-to-end connection and therefore promotes efficient infrastructure investment.
- The recovery of the costs upfront means that in the case where the end-user decides to change service provider there is a financial burden to the first RSP to provide connection at the end-users premises. The first RSP has paid for the connection upfront but then subsequently loses all the investment paid when the end user decides to churn.
- The second and subsequent RSPs to access the end-user would benefit from almost all of the initial connection investment made by the first RSP to that end-users premises.

c) Impact on end-users:

- This approach is likely to cause a delay in service take-up, especially if the charge is passed to end-users.

Option 2: Recover the connection costs in the ongoing rental:

a) Impact on Eircom:

- This approach does not improve Eircom's cashflow.
- Eircom should recover its investment over the lifetime of the service.

b) Impact on OAOs:

- With this approach there is significantly less financial risk for the first RSP in case of early customer churn, as the RSP which operates the line pays its part of the connection cost. This should promote competition.

c) Impact on end-users:

- Recovery of the costs through the monthly charge is easier to pass to end-users, if it is decided by the RSP to pass these costs on.

Option 3: Recover the connection costs based on combination of upfront charge and ongoing rental:

a) Impact on Eircom:

- This approach would allow Eircom to charge for the administration cost of migration upfront while the remaining costs are recovered in the ongoing rental charge.

b) Impact on OAOs:

- With this approach there is significantly less financial risk for the first RSP in case of early customer churn, as the RSP which operates the line pays its part of the connection cost. This should promote competition.

c) Impact on end-users:

- Recovery of the main costs through the monthly charge is easier to pass to end-users, if it is decided by the RSP to pass these costs on.

15.6 Step 4: Determine the likely impacts on competition

15.111 This is discussed at paragraphs 15.25 to 15.32.

15.7 Step 5: Assess the likely impacts and choose the best option

15.112 In light of the reasoning and justification set out throughout this Draft Decision, ComReg is of the preliminary view that the BU-LRAIC+ methodology should be applied in relation to FTTC based NGA services and for current generation Bitstream services. Please see Chapter 5 of this document for the details.

15.113 The BU-LRAIC+ methodology is particularly relevant in the more competitive areas of the country i.e., more densely populated areas or Regional Area 1. In this area, ComReg considers that the BU-LRAIC+ approach should promote efficient infrastructure investment in the market place and encourage innovation in new and enhanced infrastructures. This approach is also consistent with the European Commission 2013 Recommendation, which specifies (at paragraph 31) that: “NRAs should adopt a BU LRIC+ costing methodology that estimates the current cost that a hypothetical efficient operator would incur to build a modern efficient network, ...” The BU-LRAIC+ approach is also consistent with the costing approach used across the key wholesale access services e.g., LLU, SLU, pole / duct access.

- 15.114 The proposed footprint for determining the price levels for FTTC based NGA services is another important consideration in this Draft Decision. As set out in Chapter 7 of this document we consider that the average cost of a line for FTTC based VUA (including EVDSL) in those areas where active FTTC and EVDSL services have been deployed by Eircom promotes efficient infrastructure investment in the relevant regions and it ensures that Eircom recover its costs. As this approach derives a rental price for FTTC based VUA (including EVDSL) that is lower than the price derived based on the costs of FTTC based VUA for all VUA sites, both active and non-active, this should provide the appropriate signals to operators to invest which should lead to a lesser dependence on Eircom's network and encourage suitable infrastructure based competition in the long term. For further details please see Chapter 7 of this document.
- 15.115 For FTTC based Bitstream we considers that the objective of encouraging infrastructure investment and competition is relevant in the Regional WCA Market. However, a large amount of the Local VUA sites are already unbundled by other operators. Our objective is to provide the right investment signals in those exchanges in the Regional WCA Market where new investment is likely to occur, which is equivalent to those exchanges that have not been unbundled to date. Therefore, we propose to use the footprint of Local VUA exchanges yet to be unbundled for setting the FTTC based Bitstream price, as this corresponds with the footprint where new investment is most likely to take place. By basing the FTTC based Bitstream price on all Local VUA exchanges, the costs are lower due to the higher economies of scale compared to the Local VUA sites not yet unbundled and therefore the price is lower. Consequently, this does not favour VUA deployment (as the proposed price for FTTC based Bitstream would be lower relative to the FTTC based VUA price and the OAO would have less margin to exploit if it decided to adopt VUA rather than Bitstream). Please see Chapter 7 of this document for further details.
- 15.116 In relation to the proposed retail margin squeeze test for WLA inputs in the footprint corresponding to the Urban WCA Market we propose to adopt an EEO cost base. We consider that the proposed EEO cost base is reflective of the fact that there are other large broadband operators competing with Eircom in those exchanges corresponding to the Urban WCA Market and therefore Eircom should have some additional flexibility regarding the level of its retail costs to be recovered in its retail price. In addition, we propose to adopt the ATC cost standard as it requires an operator with SMP to price at levels that include appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. We consider that as there is no material difference between LRAIC+ and the ATC approach and given that we use Eircom's accounts to derive the retail costs that the ATC appears to be the appropriate option.

15.117 We also propose that the retail margin squeeze test associated with WLA inputs in the footprint corresponding to the Urban WCA Market should be assessed on a portfolio basis. In the proposed area where the WLA retail margin squeeze test will apply, which is the area corresponding to the Urban WCA Market, there is competition from other large operators. Therefore, ComReg considers that the portfolio approach (based on ATC) is appropriate. This approach should provide Eircom the flexibility to compete in the retail market while ensuring that OAOs dependent on Eircom's wholesale inputs have a sufficient margin over the portfolio of different NGA and current generation broadband services sold in the exchanges corresponding to the footprint of the Urban WCA Market.

15.118 On the connection costs for CGA or NGA services we propose that Eircom recovers the costs through a combination of an upfront charge and as part of the monthly rental charge. Only those costs that are incurred each time an end user migrates from one RSP to another should be recovered on the basis of an upfront connection charge. Other costs, such as the costs of the service lead (underground or overhead fibre), the ONT in the end user's premises or the costs of all poles, ducts and boxes on public roads, should be recovered as part of the ongoing rental charge in line with the economic life of the asset.

15.119 In the context of the key considerations in the RIA we consider that this Draft Decision achieves the following:

- a) **Price stability and predictability:** The proposed obligation of cost orientation for FTTC based NGA services and for current generation Bitstream, as per the WLA / WCA Market Review, coupled with the proposal of a BU-LRAIC+ methodology in this Draft Decision ensures stability and predictability to the SMP operator as to what it has to do in order to ensure compliance with its pricing obligations and also for the OAOs that use the regulated products as to what the price will be for the service it is buying. This compares with less price certainty for OAOs by way of the margin squeeze approach as Eircom has flexibility during the price control period to make changes to the wholesale price depending on changes by Eircom to the retail price.

The proposal at Chapter 12 of this document that Eircom should not change the price for any of its WLA or WCA services without demonstrating to ComReg that any revised (or new) prices are in line with the specified cost orientation obligation gives a level of certainty / predictability to other operators. This should help OAOs in terms of likely investment decisions, especially in more densely populated areas.

The proposed retail margin squeeze test in the WLA Market (corresponding to the footprint of exchanges in the Urban WCA Market) should ensure that there is sufficient margin between retail broadband

services and WLA services in the area corresponding to the Urban WCA Market so that OAOs can replicate Eircom's retail service and still make a margin – this gives certainty and predictability to OAOs.

The proposed approach regarding the recovery of Eircom's CGA / NGA connection costs should give OAOs more predictability and certainty. Recovery of costs through the monthly rental means that there is significantly less financial risk for the first RSP in case of early customer churn, as the RSP which operates the line pays its part of the connection cost. In addition, recovery of the costs through the monthly charge is easier to pass to end-users.

- b) **Promotes investment:** The obligation of cost orientation and the proposed BU-LRAIC+ approach for determining the costs associated with FTTC based NGA services and for current generation Bitstream services should help operators' investment plans.

The BU-LRAIC+ approach should promote efficient infrastructure investment in the market place and encourage innovation in new and enhanced infrastructures in the relevant areas.

Please also see paragraphs 15.114 and 15.115 on the preferred options in terms of the appropriate footprint for deriving the price levels for FTTC based NGA services and how these measures help achieve the objective of promoting investment.

- c) **Consistency of approach across networks:** We have taken utmost account of the 2013 Recommendation as discussed in Chapter 5 of this document in relation to the appropriate costing methodology for setting prices in the WLA and WCA markets.

The margin squeeze principles for the retail margin squeeze test associated with WLA inputs in the footprint corresponding to the Urban WCA Market are also relatively consistent with Annex II of the 2013 Recommendation. Please see Chapter 10 of this document for the details.

The proposed costing approach (of BU-LRAIC+ and with a RAB applied to Reusable Assets (ducts and poles)) for FTTC based NGA services is consistent with the approach already taken by ComReg for LLU, SLU, duct and pole access in the 2016 Access Pricing Decision. Therefore, this Draft Decision ensures a consistent costing approach for all access services provided across Eircom's access network.

d) **Ensures retail margin for operators competing with Eircom:** The retail margin squeeze test in Chapter 10 of this document relating to WLA inputs in the footprint corresponding to the Urban WCA Market should ensure that competitors have sufficient retail margin for broadband services in the footprint corresponding to the Urban WCA Market and be in a position to replicate the retail offers of Eircom. This should be good for competition and innovation.

15.120 To conclude, the proposed pricing approach (of BU-LRAIC+) for FTTC based NGA services and for current generation Bitstream services should encourage ongoing efficient entry and investment decisions by other operators in the relevant area while also ensuring that the SMP operator (Eircom) makes a reasonable return on its efficient investment. Please see Chapter 5 of this document for the details.

15.121 This Draft Decision provides transparency to the industry insofar as Eircom can recover no more than BU-LRAIC+ costs (with Eircom's RAB for Reusable Assets) for the provision of FTTC based NGA services and for current generation Bitstream services. This should also prevent against excessive pricing.

15.122 In addition, our proposed measures should provide reasonable price certainty and predictability to operators as we have determined the price levels for the three years of the proposed price control period (2017/18-2019/20) as well as the indicative prices for the first two years outside the control period (2020/21-2021/22) for transparency purposes and in the event that a subsequent review is not completed by then. In addition, we propose that Eircom should notify ComReg before it amends or introduces a new price for WLA / WCA services and to demonstrate that the new price is in line with the specified price control obligations should provide certainty to OAOs in terms of their own investment plans. It also ensures that Eircom cannot set excessive prices without cost justification.

Q. 36 Do you have any comments on the Regulatory Impact Assessment and in your opinion are there other factors which ComReg should consider in completing its Regulatory Impact Assessment? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Chapter 16

16 Submitting comments

- 16.1 All comments are welcome to the consultation, however it would make the task of analysing responses easier if comments were referenced to the relevant question number from this document.
- 16.2 The consultation will run from 7 April 2017 to 2 June 2017 during which time ComReg welcomes written comments on any of the issues raised.
- 16.3 Having analysed and considered the comments received, ComReg will review the main proposals set out in the consultation, amend if necessary in light of representations received and will then notify the draft measure to the European Commission, the NRAs and BEREC pursuant to Article 7 of the Framework Directive¹⁴³. ComReg will take utmost account of any comments received from the European Commission and will adopt and publish the final decision.
- 16.4 In order to promote further openness and transparency ComReg will publish all respondents' submissions to this consultation, subject to the provisions of ComReg's guidelines on the treatment of confidential information in ComReg Document No. 05/24. We would request that electronic submissions be submitted in an-unprotected format so that they can be appended into the ComReg submissions document for publishing electronically.

Please Note:

- 16.5 ComReg appreciates that many of the issues raised in this paper may require respondents to provide confidential information if their comments are to be meaningful.
- 16.6 As it is ComReg's policy to make all responses available on its website and for inspection generally, respondents to consultations are requested to clearly identify confidential material and place confidential material in a separate annex to their response.

¹⁴³ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, as amended by Directive 2009/140/EC ("the Framework Directive").

Annex: 1 Draft Decision Instrument – WLA Market

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”) and relates to the market for wholesale local access provided at a fixed location as identified by the European Commission in the 2014 Recommendation and analysed by ComReg in the ComReg SMP Decision [●]. This Decision Instrument relates to further specification of the price control and transparency obligations imposed by ComReg in the ComReg Pricing Decision [●].

1.2 This Decision Instrument is made:

- (i) Pursuant to Regulations 8, 9, 13 and 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 X of the Decision Instrument annexed to the ComReg SMP Decision [●];
- (iii) 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(1), 8(6) and 13(2) of the Access Regulations;
- (iv) Having, pursuant to Section 13 of the Communications Regulation Act 2002 (as amended), complied with Ministerial Policy Directions where applicable;
- (v) Having taken utmost account of the European Commission’s Recommendation of 11 September 2013 on non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment and the European Commission’s Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks;
- (vi) 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;
- (vii) Having regard to the analysis and reasoning set out in the ComReg SMP Decision [●] and having taken account of the submissions received from interested parties in response thereto following public consultations pursuant to Regulation 12 of the Framework Regulations;

- (viii) Having had regard to the analysis and reasoning set out in the ComReg Pricing Consultation Document No.17/26 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
 - (ix) Having had regard to the analysis and reasoning set out in the ComReg Pricing Decision [●].
- 1.3 The provisions of the ComReg SMP Consultation Document [●] and the ComReg SMP Decision [●] as well as the ComReg Pricing Consultation Document 17/26 and the ComReg Pricing Decision [●] shall, where appropriate, be construed consistently with this Decision Instrument. For the avoidance of doubt, however, to the extent that there is any conflict between a decision instrument dated prior to the Effective Date (as defined in Section 2.1 of this Decision Instrument) and this Decision Instrument, this Decision Instrument should prevail.

PART I - GENERAL PROVISIONS (SECTIONS 2 TO 3 OF THE DECISION INSTRUMENT)

2 DEFINITIONS

2.1 In this Decision Instrument, unless the context otherwise suggests:

“Access Regulations” means the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011), as may be amended from time to time;

“Access” shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time;

“Access Path” means the connection from the NTU/ONT in the End User’s premises to the Point-of-Handover. The Points-of-Handover for physical unbundling are the MDF (for metallic) and the ODF (for fibre) in the Exchange, and the Point-of-Handover for non-physical unbundling (virtual access) is the Wholesale Ethernet Interconnection Link at the serving Aggregation Node for the End User i.e. at the MPoP;

“Aggregation node” means network concentration point for Access Paths;

“Associated Facilities” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time;

“Average Total Costs” or “ATC” means a cost standard which reflects all costs incurred in the provision of a product or service including variable, fixed, common and joint costs;

“BEREC” means the Body of European Regulators for Electronic Communications, as established pursuant to Regulation (EC) No. 1211/2009 of the European Parliament and of the Council of 25 November 2009;

“Bitstream” means a wholesale product provided in the Urban WCA Market and in the Regional WCA Market;

“Bitstream Ethernet Connection Service” or “BECS” means a backhaul connectivity service;

“BECS over WEIL” means BECS provided over an Eircom WEIL;

“Bottom Up Long Run Average Incremental Cost plus” or “BU-LRAIC+” means the methodology used to estimate the “LRAIC plus” of an efficient operator which is derived from an economic and/or engineering model of an efficient network. The LRAIC plus costs are the average efficiently incurred directly attributable variable and fixed costs, including an appropriate apportionment of joint and common costs;

“Communications Regulation Act 2002 (as amended)” means the Communications Regulation Act 2002 (No. 20 of 2002) (as amended);

“ComReg” means the Commission for Communications Regulation, established under Section 6 of the Communications Regulation Act 2002 (as amended);

“ComReg Decision D05/15” means ComReg Document No.15/82 entitled “Market Review, Wholesale Fixed Voice Call Origination and Transit Markets” dated 24 July 2015;

“ComReg Decision D[XX/YY]” means ComReg Document No. [...], entitled “[...]”, dated [...] 20YY;

“ComReg Decision D[XX/YY]” means ComReg Document No. [...], entitled “[...]”, dated [...] 20YY;

“ComReg Document No. [YY/XX]” means ComReg Document No. [...], entitled “[...]”, dated [...] 20YY;

“ComReg Document No. 17/26” means ComReg Document No. 17/26, entitled “Pricing of wholesale services in the Wholesale Local Access (WLA) market and in the Wholesale Central Access (WCA) markets: Further

specification of price control obligations in Market 3a (WLA) and Market 3b (WCA)", dated 7 April 2017;

"ComReg Decision D08/10" means ComReg Document No. 10/67 entitled "Response to Consultation Document and Final Direction and Decision, Response to Consultation Document No. 09/75 and Final Direction and Decision: Accounting Separation and Cost Accounting Review of Eircom Limited", dated 31 August 2010;

"Current generation access" or "CGA" means Wholesale Local Access provided over Eircom's current generation copper access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets) that is copper based;

"Decision Instrument" means this direction and decision instrument which is made pursuant to *inter alia* Regulations 8, 9, 13 and 18 of the Access Regulations;

"Discount" means an offer or sale of a product at less than its standard price, for example a price reduction, including a volume related price reduction, a rebate, a reimbursement, a refund, a set-off and any other similar words or expressions;

"Effective Date" means the date set out in Section 13 of this Decision Instrument;

"Eircom" means Eircom Limited (with the company registration numbers of 98789 and 907674) and its subsidiaries and any related companies, and any Undertaking which it owns or controls, and any Undertaking which owns or controls Eircom Limited, and its successors and assigns. For the purpose of this Decision Instrument, the terms "subsidiary" and "related company" shall have the meanings ascribed to them in the Companies Act 2014 (as may be amended from time to time);

"End User(s)" shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time. For the avoidance of doubt, End User shall be deemed to include any natural or legal person who facilitates or intends to facilitate the provision of public communications networks or publicly available electronic communications services to other End Users and who is not acting as an Undertaking;

"Equally efficient operator cost base" or "EEO cost base" is a cost base which is derived from Eircom's costs and is based on Eircom's scale of operations;

“Exchange launched very-high-bit-rate digital subscriber line” or **“EVDSL”** means a very-high-bit-rate digital subscriber line (VDSL) service provided from an Eircom Exchange or equivalent;

“Exchange” means an Eircom network premises or equivalent facility used to house network and associated equipment and includes a Remote Subscriber Unit (RSU). The Exchange sometimes, but not always, houses the Metropolitan Point of Presence (MPoP);

“Exchange launched VUA” means that the active equipment that is required to provide VUA is housed in an Eircom Exchange building or equivalent;

“Fibre to the Cabinet” or **“FTTC”** means fibre to the cabinet which is a variant of the FTTN access network architecture where the Node used to house active equipment is the street cabinet;

“Fibre to the Home” or **“FTTH”** means fibre to the home which is a variant of the FTTN access network architecture where fibre is used to connect the end-user premises to the Exchange;

“Fibre to the Node” or **“FTTN”** means an access network architecture whereby active equipment is installed in an access network Node (a street cabinet in the case of FTTC). The active equipment is connected to the Exchange using fibre optic cable. The connection between the Node and the End User premises is by way of a copper sub-loop;

“FTTC based VUA” means VUA that is based on FTTC and in the context of this Decision Instrument includes Local VUA and Remote VUA variants and Exchange launched VUA;

“FTTC VUA and EVDSL Footprint” means those Exchanges listed in Annex [x] of the ComReg Pricing Decision [●];

“FTTH based Bitstream” means Bitstream based on FTTH in the WCA Market;

“FTTH based VUA” means VUA based on FTTH and in the context of this Decision Instrument includes Local VUA and Remote VUA variants;

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), as may be amended from time to time;

“Historical Cost Accounts” or **“HCA”** means the historical cost accounts which Eircom is required to publish in accordance with ComReg Decision D08/10;

“Local VUA” means the main distribution frame (MDF) and / or optical distribution frame (ODF) and the customer traffic handover point (serving the Aggregation Node) are co-located in the same Exchange;

“Line Share” or **“Shared Access to the Local Loop”** means the product whereby the high frequency capacity of a line is provided to OAOs, described in Annex C, Service Schedule 103 Appendix 1 to Eircom’s ARO, as may be amended from time to time;

“MDF” means the main distribution frame;

“Metropolitan Point of Presence” or **“MPoP”** means the point of inter-connection between the access and core networks of an undertaking;

“Ministerial Policy Directions” means the policy directions made by Dermot Ahern TD, then Minister for Communications, Marine and Natural Resources, pursuant to Section 13 of the Communications Regulation Act 2002 (as amended), dated 21 February 2003 and 26 March 2004;

“Network Termination Unit” or **“NTU”** means the physical interface which provides the service demarcation or Point of Handover of the wholesale service within the customer premises;

“Next generation access” or **“NGA”** means wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over exclusively copper access networks;

“NGA Cost Model” means the model as amended from time to time, used by ComReg and Eircom to assess Eircom’s compliance with the obligations contained in Section 4 of this Decision Instrument. The model calculates costs based on the BU-LRAIC+ costing methodology and the Top Down HCA costing methodology. The operation and details of the NGA Cost Model are more particularly described in Chapter 6 of the ComReg Pricing Decision [●];

“NGN Core Model” means the model as amended from time to time, used by ComReg and Eircom to assess Eircom’s compliance with the obligations contained in Section 5.3 (price floor) of this Decision Instrument based on a REO cost base. The operation and details of the NGN Core Model are more particularly described in Chapter 8 and Chapter 9 of the ComReg Pricing Decision [●];

“Node” means any location or concentration point in the access network which houses equipment for the purpose of providing services to End Users;

“**ODF**” means the optical distribution frame;

“**Plain Old Telephone Service**” or “**POTS**” means the standard telephone service that most homes use;

“**Point of Handover**” means the physical point at which two networks are interconnected to allow traffic between these networks;

“**Portfolio-based-approach**” means the method used to determine the margin between the retail price and the wholesale and retail costs across a basket of retail products that are supported by the relevant wholesale input. Under this approach the retail price is calculated based on (a) the average, weighted by number of subscribers, retail price (where more than one retail product is supported by a single wholesale input); or (b) the price of the relevant retail product (where only one retail product is supported by a single wholesale input);

“**Promotion**” means an offer in respect of a product which is available for a finite period of time and which offers a tariff reduction;

“**PSTN**” means public service telephone network;

“**Reasonably Efficient Operator cost base**” or “**REO cost base**” means a cost base based on a reasonably efficient operator which has a different basic cost function to Eircom and does not yet enjoy the same economies of scale and scope as Eircom. In the context of this Decision Instrument a similarly efficient operator (SEO) cost base has been used as a proxy for the REO cost base;

“**Regional WCA Market**” means the market as defined in Section 2 of the Decision Instrument in Annex 15 of the ComReg SMP Decision [●];

“**Relevant Cost Models**” means the NGA Cost Model and the NGN Core Model;

“**Remote VUA**” means the main distribution frame (MDF) and / or the optical distribution frame (ODF) and the customer traffic handover point (serving the Aggregation Node) are not co-located in the same Exchange;

“**Retail Product(s)**” means any Eircom next generation or current generation retail broadband product on offer or on sale in the footprint corresponding to the Urban WCA Market which uses Eircom’s network equipment to transmit data signals and shall include existing next generation and current generation retail products and new next generation and current generation retail products;

“**Retail CGA Broadband Margin Squeeze Model**” means the model, as amended from time to time, used by ComReg and Eircom to monitor

compliance with the WLA Retail Margin Squeeze Test for CGA WLA services as described in Chapter 10 of the ComReg Pricing Decision D[●];

“Retail NGA Broadband Margin Squeeze Model” means the model, as amended from time to time, used by ComReg and Eircom to monitor compliance with the WLA Retail Margin Squeeze Test for NGA WLA services and as described in Chapter 10 of the ComReg Pricing Decision D[●];

“Similarly efficient operator cost base” or **“SEO cost base”** is a cost base which means the costs of a hypothetical operator which shares the same basic cost function as Eircom but does not enjoy the same economies of scale and scope as Eircom;

“Top-Down HCA” means the methodology in which the HCA and network information of the regulated firm are used as the starting point for calculating the costs of relevant services. These inputs may subsequently be adjusted to reflect efficiencies;

“Undertaking(s)” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time;

“Urban WCA Market” means the market as defined in Section 4 of the Decision Instrument annexed to the ComReg SMP Decision D[●];

“VDSL” means very-high-bit-rate digital subscriber line;

“Virtual Unbundled Access” or **“VUA”** means the wholesale active access product provided by Eircom. It is an enhanced Layer 2 product which allows the handover or interconnection of aggregate End Users’ connections at the MPoP. It allows a level of control to the Access Seeker similar to that afforded to the Access Seeker connecting their own equipment to an unbundled Local Loop;

“Wholesale Central Access Market” or **“WCA Market”** means the Urban WCA Market and the Regional WCA Market;

“Wholesale Ethernet Interconnection Link” or **“WEIL”** is the interconnection service provided by Eircom which provides a handover for various wholesale products including its NGA and Next Generation Network wholesale products;

“Wholesale Local Access” or **“WLA”** means wholesale local access provided at a fixed location;

“Wholesale Local Access Market” or **“WLA Market”** means the wholesale local access market provided at a fixed location;

“Wholesale NGA Broadband Margin Squeeze Model” means the model, as amended from time to time, used by ComReg and Eircom to monitor

compliance with the Wholesale NGA Margin Squeeze Test and as described in Chapter 10 of the ComReg Pricing Decision D[●].

“Wholesale NGA Margin Squeeze Test” as described in Chapter 10 of this Decision Instrument, means the test used to identify the setting of a wholesale price for FTTH based VUA which does not allow another operator relying on FTTH based Bitstream to provide the same or similar wholesale inputs at a sufficient margin. The margin is tested by reference to the Wholesale NGA Broadband Margin Squeeze Model;

“WLA Retail Margin Squeeze Test” as described in Section 6 of this Decision Instrument means the test used to identify the setting of a price by Eircom for a retail broadband product(s) in the footprint corresponding to the Urban WCA Market which does not allow another operator, relying on WLA products to provide the same or similar retail product(s) at a sufficient margin. The margin is tested by reference to the Retail NGA Broadband Margin Squeeze Model and the Retail CGA Broadband Margin Squeeze Model;

“(the) 2014 Recommendation” means the European Commission Recommendation 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 on a common regulatory framework for electronic communications networks and services (OJ L 295, 11.10.2014, p. 79);

“(the) 2013 Recommendation” means the European Commission 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);

“(the) 2010 Recommendation” means the European Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (2010/572/EU).

3 SCOPE AND APPLICATION

- 3.1 This Decision Instrument is binding upon Eircom and Eircom shall comply with it in all respects.
- 3.2 This Decision Instrument, pursuant to Regulation 8, 9, 13 and 18 of the Access Regulations, is a further specification of the price control obligation and the transparency obligation previously imposed upon Eircom in the ComReg SMP Decision [●], as more particularly set out in Sections 4, 5 and 6 of this Decision Instrument.

- 3.3 Pursuant to Regulations 8, 13 and 18 of the Access Regulations, the price control obligations contained in this Decision Instrument shall apply from [date] [month] 2017 (“the Implementation Date”). Annex 8 of this Decision contains the prices determined in accordance with the Relevant Cost Models for each year ended [date] [month] and shall apply until if and when they are amended.

PART II - FURTHER SPECIFICATION OF OBLIGATIONS RELATING TO PRICE CONTROL (SECTIONS 4 TO 6 OF DECISION INSTRUMENT)

4 COST ORIENTATION OBLIGATIONS

Virtual Unbundled Access (VUA):

- 4.1 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 and Section 12.11 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the price offered or charged by Eircom to any other Undertaking in relation to FTTC based VUA shall be equal to the costs incurred by an efficient operator providing FTTC based VUA and EVDSL in the FTTC VUA and EVDSL Footprint which shall be calculated in line with the NGA Cost Model. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology. For the avoidance of doubt, there should be a single price for the FTTC based VUA product.
- 4.2 Notwithstanding the provisions of Section 4.1, where Eircom can demonstrate, to the satisfaction of ComReg, for reasons contained in Chapter 12 of this Decision (ComReg Pricing Consultation Document No. 17/26, ComReg Pricing Decision [●]), and based on proper justification provided by Eircom, that it is allowable for the monthly rental charge offered or charged by Eircom to any undertaking(s) for FTTC based VUA (including EVDSL) to be a price less than that determined by Section 4.1, the revised price determined in accordance with this Section 4.2 shall not be less than the lower of either:
- (i) Eircom’s costs for the provision of FTTC based VUA (including the costs of EVDSL) in the specific geographic area. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology in line with the NGA Cost Model; or
 - (ii) The FTTC based VUA price of an alternative operator.
- 4.3 Eircom shall ensure that any reduction to the FTTC based VUA monthly rental charge, in accordance with Section 4.2 above, is consistently applied to the FTTC based Bitstream monthly rental charge in the Regional WCA Market.

Plain old telephone service (POTS) based FTTC VUA:

- 4.4 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 of the Decision

Instrument contained in Appendix H of ComReg Decision D05/15 and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the price offered or charged by Eircom to any other Undertaking in relation to POTS based FTTC VUA shall be equal to the costs incurred by an efficient operator providing POTS based FTTC VUA which shall be calculated in line with the NGA Cost Model. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology.

Wholesale Ethernet Interconnect Links (WEILs):

- 4.5 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that it recovers no more than the costs incurred by an efficient operator calculated based on a BU-LRAIC+ costing methodology for the provision of WEILs, BECS and BECS over WEIL.

5 WHOLESALE MARGIN SQUEEZE OBLIGATION

Virtual Unbundled Access (VUA):

- 5.1 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.3 and Section 12.12 of the Decision Instrument annexed to the ComReg SMP Decision [●] and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the Wholesale NGA Margin Squeeze Test between the price for FTTH based VUA and the price for FTTH based Bitstream in the Wholesale Central Access Market is assessed by reference to the Wholesale NGA Broadband Margin Squeeze Model. The Wholesale NGA Margin Squeeze Test shall be calculated based on an REO cost base and the relevant cost standard shall be LRAIC+. For the avoidance of doubt, there should be a single price for the FTTH based VUA product unless otherwise agreed with ComReg. Where there are multiple prices for FTTH based VUA and / or FTTH based Bitstream the price variants shall be justified by costs.
- 5.2 Notwithstanding the provisions of Section 5.1, the price for FTTH based VUA shall not be less than the lower of either:
- (i) Eircom's costs for the provision of FTTH based VUA in the specific geographic area; or
 - (ii) The FTTH based VUA price of an alternative operator.

Current generation Bitstream price floor:

- 5.3 [For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.3 and Section 12.15 of the Decision Instrument annexed to the SMP Decision [●], and pursuant to

Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the wholesale margin squeeze test between the price for LLU or Line Share provided in the WLA Market and the price for Current Generation Bitstream services provided in the WCA Market is assessed by reference to the NGN Core Model based on a REO cost base.] * **[Note that this obligation may not be required where Current Generation Bitstream is priced at a price point as specified in Section 4.4 of the WCA Decision Instrument].**

6 RETAIL MARGIN SQUEEZE OBLIGATION

- 6.1 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.4 and Section 12.16 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the WLA Retail Margin Squeeze Test between the price for a WLA service provided in the footprint corresponding to the Urban WCA Market and the price of a Retail Product(s) delivered by WLA on a standalone basis in the footprint corresponding to the Urban WCA Market is assessed by reference to the Retail NGA Broadband Margin Squeeze Model and the Retail CGA Broadband Margin Squeeze Model. The WLA Retail Margin Squeeze Test shall be calculated based on an EEO cost base and the relevant cost standard shall be Average Total Costs. The WLA Retail Margin Squeeze Test is assessed using the Portfolio-based-approach for CGA services and separately for NGA services.
- 6.2 Eircom shall notify ComReg (by email or other electronic methods as agreed with ComReg) of all retail price changes or retail prices for new Retail Products and for retail price amendments to existing Retail Products no later than five (5) working days, unless otherwise agreed with ComReg, prior to the date that the new or revised price is to become operative (for the avoidance of doubt, the timelines set out at Section 10 of the Decision Instrument annexed to the ComReg SMP Decision [●] shall not apply in this respect, where no wholesale price amendment is required).
- 6.3 For the purposes of new retail prices or amendments to existing retail prices for the Retail Products, Eircom shall furnish to ComReg, at the same time as it notifies ComReg in accordance with Section 6.2 of this Decision Instrument, a detailed written statement of compliance demonstrating Eircom's proposed compliance with the obligations, as more specifically referred to in Section 6.1 of this Decision Instrument. The statement of compliance shall include the following:

- (i) A full and true disclosure of all material facts for the purpose of demonstrating compliance with the obligation referred to in Section 6.1 of this Decision Instrument, which is based on the WLA Retail Margin Squeeze Test in the Retail NGA Broadband Margin Squeeze Model and in the Retail CGA Broadband Margin Squeeze Model;
 - (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the obligation referred to in Section 6.1 of this Decision Instrument and which is based on the WLA Retail Margin Squeeze Test in the Retail NGA Broadband Margin Squeeze Model in the Retail CGA Broadband Margin Squeeze Model; and
 - (iii) Demonstration of how any amendments to the price of the equivalent wholesale offering of an existing product are and will be in compliance with the obligations referred to in Section 6.1 of this Decision Instrument and which is based on the Retail NGA Broadband Margin Squeeze Model and the Retail CGA Broadband Margin Squeeze Model.
- 6.4 Upon receipt of the statement of compliance referred to in Section 6.3, ComReg shall review the same. Within the 5 working day period referred to in Section 6.2 (or as otherwise agreed with ComReg) ComReg shall provide Eircom with both (a) an appropriate written view, insofar as possible based on the available information provided by Eircom at that point in time, in relation to the statement of compliance referred to in Section 6.3; and (b) written confirmation that the making available or offering for sale of the new or existing Retail Product(s) appears to be in compliance with Eircom's obligations under Section 6.1. However, any such written view or confirmation provided by ComReg is a *prima facie* view and does not fetter ComReg's future discretion in relation to its statutory powers.
- 6.5 For the purposes of Promotions and Discounts, the obligations contained in Sections 6.1 to 6.4 above shall apply in respect of the retail price of new and existing Retail Product(s) and any equivalent Wholesale product(s).

PART III - FURTHER SPECIFICATION OF OBLIGATIONS RELATING TO TRANSPARENCY (SECTION 7 OF THE DECISION INSTRUMENT)

7 TRANSPARENCY

- 7.1 Pursuant to Regulations 8, 9, 13 and 18 of the Access Regulations, and in accordance with the timelines set out in the transparency obligations contained in Section 10.11 and Section 10.12 of the Decision Instrument annexed to the ComReg SMP Decision D[●], Eircom shall notify ComReg before it increases, decreases or introduces a wholesale new price for Wholesale Local Access products, services and facilities.

- 7.2 For all new wholesale prices or amendments to existing wholesale prices associated with Wholesale Local Access products, services and facilities, Eircom shall furnish to ComReg, at the same time as it notifies ComReg in accordance with Section 7.1, a written statement of compliance demonstrating Eircom's compliance with the price control and the obligations referred to in Sections 4 and 5 of this Decision Instrument. The statement of compliance shall include the following:
- (i) A full and true disclosure of all material facts for the purpose of demonstrating compliance with the price control and the obligation referred to in Sections 4 and 5 of this Decision Instrument; and
 - (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the price control and the obligation referred to in Sections 4 and 5 of this Decision Instrument.
- 7.3 Upon receipt of the statement of compliance referred to in Section 7.2, ComReg shall review the statement of compliance and within one (1) month ComReg shall provide Eircom with both (a) an appropriate written view, insofar as possible based on the available information provided by Eircom at that point in time, in relation to the statement of compliance referred to in Section 7.2; and (b) written confirmation that the making available or offering for sale of the new or existing product appears to be in compliance with Eircom's obligations under Sections 4 and 5. However, any such written view or confirmation provided by ComReg is a *prima facie* view and does not fetter ComReg's future discretion in relation to its statutory powers.

PART IV – OPERATION AND EFFECTIVE DATE (SECTIONS 8 TO 13 OF THE DECISION INSTRUMENT)

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 continue in force and Eircom shall comply with same.

10 CONFLICT

- 10.1 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, unless otherwise indicated by ComReg.

11 SEVERANCE

- 11.1 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.

12 IMPOSITION OF SMP OBLIGATIONS

- 12.1 Pursuant to Regulations 8, 9, 10, 11, 12, 13 and 18 of the Access Regulations, the obligations set out in Sections 4 to 7 (inclusive) of this Decision Instrument shall only come into effect when all of the obligations set out in Sections 4 to 13 (inclusive) of the Decision Instrument contained in Annex [●] of ComReg Decision [●] (i.e. the WCA Decision Instrument) come into effect.

13 EFFECTIVE DATE

- 13.1 The Effective Date of this Decision Instrument shall be the date of its notification to Eircom and it shall remain in force until further notice by ComReg.

GERRY FAHY

CHAIRPERSON

THE COMMISSION FOR COMMUNICATIONS REGULATION

THE [] DAY OF [] 20YY

Q. 37 Do you believe that the draft text of the proposed Decision Instrument for the Wholesale Local Access market at a fixed location (WLA Market or Market 3a) is from a legal, technical and practical perspective, sufficiently detailed, clear and precise with regards to the specifics proposed? Please explain your response and provide details of any specific amendments you believe are required.

Annex: 2 Draft Decision Instrument – WCA Market

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”) and relates to the market for Wholesale Central Access for mass market products provided at a fixed location as identified by the European Commission in the 2014 Recommendation and analysed by ComReg in the ComReg SMP Decision [●]. This Decision Instrument relates to further specification of the price control and transparency obligations imposed by ComReg in the ComReg Pricing Decision [●].

1.2 This Decision Instrument is made:

- (i) Pursuant to Regulations 8, 9, 13 and 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 X of the Decision Instrument annexed to the ComReg SMP Decision [●];
- (iii) 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(1) 8(6) and 13(2) of the Access Regulations;
- (iv) Having, pursuant to Section 13 of the Communications Regulation Act 2002 (as amended) complied with Ministerial Policy Directions, where applicable;
- (v) Having taken utmost account of the European Commission’s Recommendation of 11 September 2013 on non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment and the European Commission’s Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks;
- (vi) 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;
- (vii) Having had regard to the analysis and reasoning set out in ComReg SMP Decision [●] 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

- (viii) Having had regard to the analysis and reasoning set out in the ComReg Pricing Consultation Document No. 17/26 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
 - (ix) Having had regard to the analysis and reasoning set out in the ComReg Pricing Decision [●].
- 1.3 The provisions of the ComReg SMP Consultation Document [●] and the ComReg SMP Decision [●] and the ComReg Pricing Consultation Document 17/26 and the ComReg Pricing Decision [●] shall, where appropriate, be construed consistently with this Decision Instrument. For the avoidance of doubt, however, to the extent that there is any conflict between a decision instrument dated prior to the Effective Date (as defined in Section 2.1 of this Decision Instrument) and this Decision Instrument, this Decision Instrument should prevail.

PART I - GENERAL PROVISIONS (SECTIONS 2 TO 3 OF THE DECISION INSTRUMENT)

2 DEFINITIONS

- 2.1 In this Decision Instrument, unless the context otherwise suggests:

“Access Regulations” means the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011), as amended from time to time;

“Access” shall have the same meaning as under Regulation 2 of the Access Regulations, as amended from time to time;

“Average Total Costs” or **“ATC”** means a cost standard which reflects all costs incurred in the provision of a product or service including variable, fixed, common and joint costs;

“BEREC” means the Body of European Regulators for Electronic Communications, as established pursuant to Regulation (EC) No. 1211/2009 of the European Parliament and of the Council of 25 November 2009;

“Bitstream” means a wholesale product provided in the Relevant Market;

“Bitstream Ethernet Connection Service” or **“BECS”** means a backhaul connectivity service;

“BECS over WEIL” means BECS provided over an Eircom WEIL;

“Bitstream Managed Backhaul” means a form of Bitstream provided in the Relevant Market;

“Bottom Up Long Run Average Incremental Cost plus” or **“BU-LRAIC +”** means the methodology used to estimate the “LRAIC plus” of an efficient operator which is derived from an economic and/or engineering model of an efficient network. The LRAIC plus costs are the average efficiently incurred directly attributable variable and fixed costs, including an appropriate apportionment of joint and common costs;

“CGA WCA Retail Margin Squeeze Test – Regional Area 1” as described in Section 6 of this Decision Instrument means the test used to identify the setting of a retail price for Current Generation Bitstream in Regional Area 1 which does not allow another operator relying on Current Generation Bitstream in Regional Area 1 to provide the same or similar retail product at a sufficient margin. The margin is tested by reference to the Retail CGA Broadband Margin Squeeze Model;

“CGA WCA Retail Margin Squeeze Test – Regional Area 2” as described in Section 6 of this Decision Instrument means the test used to identify the setting of a retail price for Current Generation Bitstream in Regional Area 2 which does not allow another operator relying on Current Generation Bitstream in Regional Area 2 to provide the same or similar retail product at a sufficient margin. The margin is tested by reference to the Retail CGA Broadband Margin Squeeze Model;

“Communications Regulation Act 2002 (as amended)” means the Communications Regulation Act 2002 (No. 20 of 2002), as amended;

“ComReg” means the Commission for Communications Regulation, established under Section 6 of the Communications Regulation Act 2002 (as amended);

“ComReg Decision D05/15” means ComReg Document No.15/82 entitled “Market Review, Wholesale Fixed Voice Call Origination and Transit Markets” dated 24 July 2015;

“ComReg Decision D[XX/YY]” means ComReg Document No.[YY/XX], entitled “[...]”, and dated [...] 20YY;

“ComReg Document No. [YY/XX]” means ComReg Document No.[YY/XX] entitled “[...]”, dated [...]20YY;

ComReg Decision D[XX/YY]” means ComReg Document No.[YY/XX], entitled “[...]”, dated [...]20YY;

“ComReg Document No. 17/26” means ComReg Document No.17/26, entitled “Pricing of wholesale services in the Wholesale Local Access (WLA) market and in the Wholesale Central Access (WCA) markets: Further specification of price control obligations in Market 3a (WLA) and Market 3b (WCA)”, dated 7 April 2017;

“ComReg Decision D08/10” means ComReg Document No. 10/67 entitled “Response to Consultation Document and Final Direction and Decision, Response to Consultation Document No. 09/75 and Final Direction and Decision: Accounting Separation and Cost Accounting Review of Eircom Limited”, dated 31 August 2010;

“ComReg Decision D03/16” means ComReg Document No.16/39, entitled “Pricing of Eir’s Wholesale Fixed Access Services: Response to Consultation Document 15/67 and Final Decision”, dated 18 May 2016;

“Current Generation Bitstream” means Wholesale Central Access provided over Eircom’s current generation copper access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets) that is copper based;

“Decision Instrument” means this direction and decision instrument which is made pursuant to, *inter alia*, Regulations 8, 9, 13 and 18 of the Access Regulations;

“Discount” means an offer or sale of a product at less than its standard price, for example a price reduction, including a volume related price reduction, a rebate, a reimbursement, a refund, a set-off and any other similar words or expressions;

“Effective Date” means the date set out in Section 13 of this Decision Instrument;

“Eircom” means Eircom Limited, and its subsidiaries and any related companies, and any Undertaking which it owns or controls, and any Undertaking which owns or controls Eircom Limited, and its successors and assigns. For the purpose of this Decision Instrument, the terms “subsidiary” and “related company” shall have the meaning ascribed to them in the Companies Act 2014 (as may be amended from time to time);

“End-to-End Current Generation Bitstream” means the end-to-end resale of Current Generation Bitstream which allows the Access Seeker to purchase Current Generation WBA without the need to have its own;

“End-to-End Next Generation Bitstream” means the end-to-end resale of Next Generation Bitstream which allows the Access Seeker to purchase Next Generation WBA without the need to have its own;

“End User(s)” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time. For the avoidance of doubt, End User(s) shall be deemed to include any natural or legal person who facilitates or intends to facilitate the provision of public communications networks or publicly available electronic communications services to other End Users and who is not acting as an Undertaking;

“Equally efficient operator cost base” or **“EEO cost base”** is a cost base which is derived from Eircom’s costs and is based on Eircom’s scale of operations;

“Exchange” means an Eircom network premises or equivalent facility used to house network and associated equipment and includes a Remote Subscriber Unit (RSU). The Exchange sometimes, but not always, houses the Metropolitan Point of Presence (MPoP);

“Exchange launched Bitstream” means that the active equipment required to provide the service is housed in an Eircom exchange building or equivalent;

“Fibre to the Cabinet” or **“FTTC”** means fibre to the cabinet which is a variant of the FTTN access network architecture where the Node used to house active equipment is the street cabinet;

“Fibre to the Home” or **“FTTH”** means fibre to the home which is a variant of the FTTN access network architecture where fibre is used to connect the end-user premises to the Exchange;

“Fibre to the Node” or **“FTTN”** means an access network architecture whereby active equipment is installed in an access network Node (a street cabinet in the case of FTTC). The active equipment is connected to the Exchange using fibre optic cable. The connection between the Node and the End User premises is by way of a copper sub-loop;

“FTTC based Bitstream” means Bitstream provided over FTTC and in the context of this Decision Instrument it also includes Exchange launched Bitstream;

“FTTH based Bitstream” means Bitstream provided over FTTH;

“FTTC Bitstream Footprint” means those exchanges listed in Annex [x] of the ComReg Pricing Decision [●];

“Framework Regulations” means the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), as amended from time to time;

“Historical Cost Accounts” or **“HCA”** means the historical cost accounts which Eircom is required to publish in accordance with ComReg Decision D08/10;

“MDF” means main distribution frame;

“Metropolitan Point of Presence” or **“MPoP”** means the point of inter-connection between the access and core networks of an Undertaking;

“Ministerial Policy Directions” means the policy directions made by Dermot Ahern TD, then Minister for Communications, Marine and Natural Resources, dated 21 February 2003 and 26 March 2004;

“Next Generation Access” or **“NGA”** means wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over exclusively copper access networks;

“Next Generation Bitstream” means Wholesale Central Access provided over NGA and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets);

“NGA Cost Model” means the model as amended from time to time, used by ComReg and Eircom to assess Eircom’s compliance with the obligations contained in Section 4 of this Decision Instrument. The model calculates costs based on the BU-LRAIC+ costing methodology and the Top-Down HCA costing methodology. The operation and details of the NGA Cost Model are more particularly described in Chapter 6 of the ComReg Pricing Decision [●];

“NGA WCA Retail Margin Squeeze Test - FTTC based Bitstream” as described in Section 6 of this Decision Instrument means the test used to identify the setting of a retail price for FTTC based Bitstream in the Regional WCA Market which does not allow another operator relying on FTTC based Bitstream in the Regional WCA Market to provide the same or similar retail product at a sufficient margin. The margin is tested by reference to the Retail NGA Broadband Margin Squeeze Model;

“NGA WCA Retail Margin Squeeze Test - FTTH based Bitstream” as described in Section 6 of this Decision Instrument means the test used to identify the setting of a retail price for FTTH based Bitstream in the Regional WCA Market which does not allow another operator relying on FTTH based

Bitstream in the Regional WCA Market to provide the same or similar retail product at a sufficient margin. The margin is tested by reference to the Retail NGA Broadband Margin Squeeze Model;

“NGN Core Model” means the model as amended from time to time, used by ComReg and Eircom to assess Eircom’s compliance with the obligations contained in Section 4 of this Decision Instrument. The model calculates costs based on the BU-LRAIC+ costing methodology. The operation and details of the NGN Core Model are more particularly described in Chapter 8 of the ComReg Pricing Decision [●];

“Node” means any location or concentration point in the access network which houses equipment for the purpose of providing services to End Users;

“Plain Old Telephone Service” or **“POTS”** means the standard telephone service that most homes use;

“Portfolio-based-approach” means the method used to determine the margin between the retail price and the wholesale and retail costs across a basket of retail products that are supported by the relevant wholesale input. Under this approach the retail price is calculated based on (a) the average, weighted by number of subscribers, retail price (where more than one retail product is supported by a wholesale input); or (b) the price of the relevant retail product (where only one retail product is supported by a wholesale input);

“Product-by-product-based-approach” means the method used to determine the margin between the retail price and the wholesale and retail costs for a single retail product that is supported by the relevant wholesale input. Under this approach the retail price is calculated based on the individual price of each retail product;

“Promotion” means an offer in respect of a product which is available for a finite period of time and which offers a tariff reduction;

“PSTN” means Public Switched Telephone network;

“Reasonably Efficient Operator cost base” or **“REO cost base”** means a cost base based on reasonably efficient operator which has a different basic cost function to Eircom and does not yet enjoy the same economies of scale and scope as Eircom. In the context of Sections 5.1 - 5.2 and Sections 6.1 - 6.4 of this Decision Instrument a similarly efficient operator (SEO) cost base has been used as a proxy for the REO cost base;

“Regional Area 1” has the meaning set out in Section xx of the Decision Instrument contained in Annex x of ComReg Decision D[xx] [Bundles Decision] and Annex [10] of this Decision Instrument. Regional Area 1 will be the total

geographic area comprising all individual exchange areas, each of which, at the Effective Date of this Decision Instrument, satisfies at least one of the criteria set out in Section xx of the Decision Instrument contained in Annex x of ComReg Decision D[xx] [Bundles Decision] and Annex [10] of this Decision Instrument;

“Regional Area 2” means the remaining exchanges in the Regional WCA Market after Regional Area 1 have been excluded;

“Regional WCA Market” means the market as defined in Section 2 of the Decision Instrument in Annex 15 of the ComReg SMP Decision [●];

“Relevant Cost Models” means the NGA Cost Model and the NGN Core Model;

“(the) Relevant Market(s)” means the markets described in Section 4 of the Decision Instrument in the ComReg SMP Decision [●] and comprise the Urban WCA Market and the Regional WCA Market;

“Retail CGA Broadband Margin Squeeze Model” means the model, as amended from time to time, used by ComReg and Eircom to monitor compliance with the CGA WCA Retail Margin Squeeze Test – Regional Area 1 and CGA WCA Retail Margin Squeeze Test – Regional Area 2 as described in Chapter 11 of ComReg Pricing Decision D[●];

“Retail NGA Broadband Margin Squeeze Model” means the model, as amended from time to time, used by ComReg and Eircom to monitor compliance with the NGA WCA Retail Margin Squeeze Test - FTTC based Bitstream and NGA WCA Retail Margin Squeeze Test - FTTH based Bitstream as described in Chapter 11 of ComReg Pricing Decision D[●];

“Revised Copper Access Model” means the model, as amended from time to time (subject to approval by ComReg), used by ComReg and Eircom to assess Eircom’s compliance with the obligations contained in ComReg Decision D03/16. The model calculates costs based on both Top Down HCA and BU-LRAIC+ costing methodologies. The operation and details of the Revised Copper Access Model are more particularly described in Chapter 5 of ComReg Decision D03/16;

“Similarly efficient operator cost base” or **“SEO cost base”** is a cost base which means the costs of a hypothetical operator which shares the same basic cost function as Eircom but does not enjoy the same economies of scale and scope as Eircom;

“Standalone Broadband” means broadband service delivered without a PSTN voice telephony service;

“Top-Down HCA” means the methodology in which the HCA and network information of the regulated firm are used as the starting point for calculating the costs of relevant services. These inputs may subsequently be adjusted to reflect efficiencies;

“Urban WCA Market” means the market as defined in Section 4 of the Decision Instrument annexed to the ComReg SMP Decision [●];

“Undertaking(s)” shall have the same meaning as under Regulation 2 of the Framework Regulations, as amended from time to time;

“Wholesale CGA Broadband Margin Squeeze Model” means the model, as amended from time to time, used by ComReg and Eircom to monitor compliance with the Wholesale Margin Squeeze Test between End-to-End Current Generation Bitstream and Current Generation Bitstream in the Regional WCA Market based on a REO cost base described in Chapter 11 of the ComReg Pricing Decision D[●];

“Wholesale Ethernet Interconnection Link” or **“WEIL”** is the interconnection service provided by Eircom which provides a handover for various wholesale products including its NGA and Next Generation Network wholesale products;

“Wholesale Margin Squeeze Test between End-to-end Current Generation Bitstream and Current Generation Bitstream” as described in Chapter 11 of ComReg Pricing Decision D[●], means the setting of a wholesale price for End-to-End Current Generation Bitstream which does not allow another operator relying on Current Generation Bitstream to provide the same or similar wholesale inputs at a sufficient margin. The margin is tested by reference to the Wholesale CGA Broadband Margin Squeeze Model;

“Wholesale Margin Squeeze Test between End-to-end Next Generation Bitstream and Next Generation Bitstream” as described in Chapter 11 of ComReg Pricing Decision D[●], means the setting of a wholesale price for End-to-End Next Generation Bitstream which does not allow another operator relying on Next Generation Bitstream to provide the same or similar wholesale inputs at a sufficient margin. The margin is tested by reference to the Wholesale NGA Broadband Margin Squeeze Model;

“Wholesale NGA Broadband Margin Squeeze Model” means the model, as amended from time to time, used by ComReg and Eircom to monitor compliance with the Wholesale Margin Squeeze Test between End-to-End Next Generation Bitstream and Next Generation Bitstream in the Regional WCA Market based on a REO cost base described in Chapter 11 of the ComReg Pricing Decision D[●].

“(the) 2014 Recommendation” means the European Commission Recommendation 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 on a common regulatory framework for electronic communications networks and services (OJ L 295, 11.10.2014, p. 79);

“(the) 2013 Recommendation” means the European Commission 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);

“(the) 2010 Recommendation” means and the European Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (2010/572/EU).

3 SCOPE AND APPLICATION

- 3.1 This Decision Instrument is binding upon Eircom and Eircom shall comply with it in all respects.
- 3.2 This Decision Instrument, pursuant to Regulation 8, 9, 13 and 18 of the Access Regulations, is a further specification of the price control obligation and the transparency obligation previously imposed upon Eircom in the ComReg SMP Decision [●], as more particularly set out in Sections 4, 5 and 6 of this Decision Instrument.
- 3.3 Pursuant to Regulations 8, 13 and 18 of the Access Regulations, the price control obligations contained in this Decision Instrument shall apply from [date] [month] 2017 (“the Implementation Date”). Annex 8 of this Decision contains the prices determined in accordance with the Relevant Cost Models for each year ended [date] [month] and shall apply until if and when they are amended.

PART II - FURTHER SPECIFICATION OF OBLIGATIONS RELATING TO PRICE CONTROL (SECTIONS 4 to 6 OF THE DECISION INSTRUMENT)

4 SMP OBLIGATIONS: COST ORIENTATION OBLIGATION

Bitstream:

- 4.1 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 and Section 12.5 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the price offered or charged by Eircom to any other Undertaking in relation

to FTTC based Bitstream in the Regional WCA Market shall be equal to the costs incurred by an efficient operator providing FTTC based Bitstream in the FTTC Bitstream Footprint which shall be calculated in line with the NGA Cost Model. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology adjusted to reflect a REO cost base.

4.2 Notwithstanding the provisions of Section 4.1, where Eircom can demonstrate, to the satisfaction of ComReg, for reasons contained in Chapter 12 of this Decision (ComReg Pricing Consultation Document No. 17/26, ComReg Pricing Decision [●]), and based on proper justification provided by Eircom, that it is allowable for the monthly rental charge offered or charged by Eircom to any undertaking(s) for FTTC based Bitstream to be a price less than that determined by section 4.1, the revised price determined in accordance with this Section 4.2 shall not be less than the lower of either:

(iii) Eircom's costs for the provision of FTTC based VUA (including the costs of EVDSL) in the specific geographic area. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology in line with the NGA Cost Model; or

(iv) The FTTC based VUA price of an alternative operator.

4.3 Eircom shall ensure that any reduction to the FTTC based Bitstream monthly rental charge, in accordance with Section 4.2 above, is consistently applied to the FTTC based VUA monthly rental charge in the WLA Market.

4.4 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 and Section 12.6 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the price offered or charged by Eircom to any other Undertaking in relation to Current Generation Bitstream and Bitstream Managed Backhaul in the Regional WCA market shall be equal to [or no more than] the costs incurred by an efficient operator* providing Current Generation Bitstream and Bitstream Managed Backhaul in the Regional WCA Market which shall be calculated in line with the NGN Core Model. Such costs shall be based on a BU-LRAIC+ costing methodology. * **[The efficient operator's costs might be Eircom's costs or the REO costs].**

Plain old telephone service (POTS) based FTTC Bitstream:

4.5 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 of the Decision Instrument contained in Appendix H of ComReg Decision D05/15, and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the price offered or charged by Eircom to any other Undertaking in relation to POTS based FTTC Bitstream shall be equal to the costs incurred by an

efficient operator providing POTS based FTTC Bitstream which shall be calculated in line with the NGA Cost Model. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology.

Standalone Broadband (SABB)

- 4.6 Further to Section 4.2 of the Decision Instrument at ComReg Decision D03/16, where Eircom can demonstrate, to the satisfaction of ComReg, for reasons contained in Chapter 12 of (ComReg Document No. 16/39, ComReg Decision D03/16), based on proper justification provided by Eircom, that it is allowable for the monthly rental charge offered or charged by Eircom to any undertaking(s) for Standalone Broadband in Regional Area 2 of Regional WCA Market to be less than those prices determined by Section 4.1 of the Decision Instrument at ComReg Decision D03/16, the revised prices determined in accordance with Section 4.2 of the Decision Instrument at ComReg Decision D03/16 shall not be less than the average costs incurred by an efficient operator providing Standalone Broadband within Regional Area 1 excluding those exchanges included under Criterion 5 of Annex [XX] of the Regional WCA Market, which shall be calculated in line with the Revised Copper Access Model. Such costs shall be based on a combination of a BU-LRAIC+ costing methodology and a Top-Down HCA costing methodology.

Wholesale Ethernet Interconnect Links (WEILs):

- 4.7 For the purposes of further specifying requirements to be complied with relating to the cost orientation obligation set out in Section 12.2 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that it recovers no more than the costs incurred by an efficient operator calculated based on a BU-LRAIC+ costing methodology for the provision of WEILs, BECS and BECS over WEIL.

5 SMP OBLIGATIONS: WHOLESAL MARGIN SQUEEZE OBLIGATION

- 5.1 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.3 and Section 12.9 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the Wholesale Margin Squeeze Test between the price for End-to-End Next Generation Bitstream and the price for Next Generation Bitstream is assessed by reference to the Wholesale NGA Broadband Margin Squeeze Model. For avoidance of doubt this obligation applies to both FTTC and FTTH based NGA services provided in the Regional WCA Market. The test shall be calculated based on a REO cost base and the relevant cost standard shall be LRAIC plus.

- 5.2 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.3 and Section 12.9 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the Wholesale Margin Squeeze Test between the price for End-to-End Current Generation Bitstream and the price for Current Generation Bitstream is assessed by reference to the Wholesale CGA Broadband Margin Squeeze Model. The test shall be calculated based on a REO cost base and the relevant cost standard shall be LRAIC plus.

6 SMP OBLIGATIONS: RETAIL MARGIN SQUEEZE OBLIGATION

- 6.1 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.4 and Section 12.10 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the NGA WCA Retail Margin Squeeze Test - FTTC based Bitstream is assessed by reference to the Retail NGA Broadband Margin Squeeze Model. The NGA WCA Retail Margin Squeeze Test – FTTC based Bitstream shall be calculated based primarily on a REO cost base with some costs based on an EEO cost base and the relevant cost standard shall be Average Total Costs. The NGA WCA Retail Margin Squeeze Test - FTTC based Bitstream is assessed using the Portfolio-based-approach.
- 6.2 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.4 and Section 12.11 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the NGA WCA Retail Margin Squeeze Test - FTTH based Bitstream is assessed by reference to the Retail NGA Broadband Margin Squeeze Model. The NGA WCA Retail Margin Squeeze Test - FTTH based Bitstream shall be calculated based primarily on a REO cost base with some costs based on an EEO cost base and the relevant cost standard shall be Average Total Costs. The NGA WCA Retail Margin Squeeze Test - FTTH based Bitstream is assessed using the Portfolio-based-approach.

- 6.3 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.4 and Section 12.12 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the CGA WCA Retail Margin Squeeze Test – Regional Area 1 is assessed by reference to the Retail CGA Broadband Margin Squeeze Model. The CGA WCA Retail Margin Squeeze Test – Regional Area 1 shall be calculated based primarily on a REO cost base with some costs based on an EEO cost base and the relevant cost standard shall be Average Total Costs. The CGA WCA Retail Margin Squeeze Test – Regional Area 1 is assessed using the Portfolio-based-approach.
- 6.4 For the purposes of further specifying requirements to be complied with relating to the margin squeeze obligation set out in Section 12.4 and Section 12.13 of the Decision Instrument annexed to the ComReg SMP Decision [●], and pursuant to Regulations 8, 13 and 18 of the Access Regulations, Eircom shall ensure that the CGA WCA Retail Margin Squeeze Test – Regional Area 2 is assessed by reference to the Retail CGA Broadband Margin Squeeze Model. The CGA WCA Retail Margin Squeeze Test – Regional Area 2 shall be calculated based on a REO cost base and the relevant cost standard shall be Average Total Costs. The CGA WCA Retail Margin Squeeze Test – Regional Area 1 is assessed using Product-by-product-based-approach.
- 6.5 Eircom shall notify ComReg (by email or other electronic methods as agreed with ComReg) of all retail price changes or new retail prices for new Retail Products and for retail price amendments to existing Retail Products no later than five (5) working days, unless otherwise agreed with ComReg, prior to the date that the new or revised price is to become operative (for the avoidance of doubt, the timelines set out at Section 10 of the Decision Instrument annexed to the ComReg SMP Decision D[●] shall not apply in this respect, where no wholesale price amendment is required).
- 6.6 For the purposes of new retail prices or amendments to existing retail prices for the Retail Products, Eircom shall furnish to ComReg, at the same time as it notifies ComReg in accordance with Section 6.5 of this Decision Instrument, a detailed written statement of compliance demonstrating Eircom's proposed compliance with the obligations, as more specifically referred to in Sections 6.1 to 6.4 of this Decision Instrument. The statement of compliance shall include the following:
- (i) A full and true disclosure of all material facts for the purpose of demonstrating compliance with the obligations referred to in Sections 6.1 to 6.4 of this Decision Instrument, which is based on the Retail NGA Broadband Margin Squeeze Model and the Retail CGA Broadband Margin Squeeze Model;

- (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the obligations referred to in Sections 6.1 to 6.4 of this Decision Instrument and which is based on the Retail NGA Broadband Margin Squeeze Model and the Retail CGA Broadband Margin Squeeze Model; and
 - (iii) Demonstration of how any amendments to the price of the equivalent wholesale offering of an existing product are and will be in compliance with the obligations referred to in Sections 6.1 to 6.4 of this Decision Instrument and which is based on the Retail NGA Broadband Margin Squeeze Model and Retail CGA Broadband Margin Squeeze Model.
- 6.7 Upon receipt of the statement of compliance referred to in Section 6.6, ComReg shall review the same. Within the 5 working day period referred to in Section 6.5 (or otherwise as agreed with ComReg) ComReg shall provide Eircom with both (a) an appropriate written view, insofar as possible based on the available information provided by Eircom at that point in time, in relation to the statement of compliance referred to in Section 6.6; and (b) written confirmation that the making available or offering for sale of the new or existing Retail Product(s) appears to be in compliance with Eircom's obligations under Sections 6.1 to 6.4. However, any such written view or confirmation provided by ComReg is a *prima facie* view and does not fetter ComReg's future discretion in relation to its statutory powers.
- 6.8 For the purposes of Promotions and Discounts, the obligations contained in Sections 6.1 to 6.7 above shall apply in respect of the retail price of new and existing Retail Product(s) and any equivalent Wholesale product(s).

PART III - FURTHER SPECIFICATION OF OBLIGATIONS RELATING TO TRANSPARENCY (SECTION 7 OF THE DECISION INSTRUMENT) – GENERAL

7 TRANSPARENCY

- 7.1 Pursuant to Regulations 8, 9, 13 and 18 of the Access Regulations, and in accordance with the timelines set out in the transparency obligations contained in Section 10.10 and Section 10.11 of the Decision Instrument annexed to the ComReg SMP Decision D[●], Eircom shall notify ComReg before it increases, decreases or introduces a new price for Wholesale Central Access products, services and facilities.

- 7.2 For all new wholesale prices or amendments to existing wholesale prices associated with Wholesale Central Access products, services and facilities, Eircom shall furnish to ComReg, at the same time as it notifies ComReg in accordance with Sections 4 and 5 of this Decision Instrument, a written statement of compliance demonstrating Eircom's compliance with the price control and the obligations referred to in Sections 4 and 5 of this Decision Instrument. The statement of compliance shall include the following:
- (i) A full and true disclosure of all material facts for the purpose of demonstrating compliance with the price control and the obligations referred to in Sections 4 and 5 of this Decision Instrument; and
 - (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the price control and the obligations referred to in Sections 4 and 5 of this Decision Instrument.
- 7.3 Upon receipt of the statement of compliance referred to in Section 7.2, ComReg shall review the statement of compliance and within one (1) month ComReg shall provide Eircom with both (a) an appropriate written view, insofar as possible based on the available information provided by Eircom at that point in time, in relation to the statement of compliance referred to in Section 7.2; and (b) written confirmation that the making available or offering for sale of the new or existing product appears to be in compliance with Eircom's obligations under Sections 4 and 5 of this Decision Instrument. However, any such written view or confirmation provided by ComReg is a *prima facie* view and does not fetter ComReg's future discretion in relation to its statutory powers.

PART IV – OPERATION AND EFFECTIVE DATE (SECTIONS 8 TO 13 OF THE DECISION INSTRUMENT)

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, continue in force and Eircom shall comply with same.

10 CONFLICT

- 10.1 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, unless otherwise indicated by ComReg.

11 SEVERANCE

- 11.1 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.

12 IMPOSITION OF SMP OBLIGATIONS

- 12.1 Pursuant to Regulations 8, 9, 10, 11, 12, 13 and 18 of the Access Regulations, the obligations set out in Sections 4 to 7 (inclusive) of this Decision Instrument shall only come into effect when all of the obligations set out in Sections 4 to 13 (inclusive) of the Decision Instrument contained in Annex [●] of ComReg Decision [●] (i.e. the WLA Decision Instrument) come into effect.

13 EFFECTIVE DATE

- 13.1 The Effective Date of this Decision Instrument shall be the date of its notification to Eircom and it shall remain in force until further notice by ComReg.

GERRY FAHY

CHAIRPERSON

THE COMMISSION FOR COMMUNICATIONS REGULATION

THE [] DAY OF [] 20YY

Q. 38 Do you believe that the draft text of the proposed Decision Instrument for the Wholesale Central Access market for mass market products at a fixed location is from a legal, technical and practical perspective, sufficiently detailed, clear and precise with regards to the specifics proposed? Please explain your response and provide details of any specific amendments you believe are required.

Annex: 3 Legal basis

A 3.1 By ComReg Document No. 16/96, and pursuant to Regulations 25 and 26 of the Framework Regulations, Section 5 of the Draft Decision Instrument contained in Appendix 14 proposes to designate Eircom as having significant market power (“SMP”) on the market wholesale local access (the “WLA” market).

A 3.2 Under Sections 10 and 12 of the WLA Draft Decision Instrument annexed to ComReg Document No. 16/96, and pursuant to Regulations 9 and 13 of the Access Regulations, ComReg is proposing to impose obligations relating to transparency and price control on Eircom.

A 3.3 Pursuant to Regulation 18 of the Access Regulations, ComReg proposes in this Consultation Document 17/26 to further specify the obligations relating to transparency and price control contained in Sections 10 and 12 of the WLA Draft Decision Instrument annexed to ComReg Document No 16/96.

Obligations relating to the market for wholesale central access provided at a fixed location

A 3.4 By ComReg Document No. 16/96, and pursuant to Regulations 25 and 26 of the Framework Regulations, Section 5 of the Draft Decision Instrument contained in Appendix 15 proposes to designate Eircom as having significant market power (“SMP”) on the regional market for wholesale central access (the “Regional WCA” market).

A 3.5 Under Sections 10 and 12 of the WCA Draft Decision Instrument annexed to ComReg Document No. 16/96, and pursuant to Regulations 9 and 13 of the Access Regulations, ComReg is proposing to impose obligations relating to transparency and price control on Eircom.

A 3.6 Pursuant to Regulation 18 of the Access Regulations, ComReg proposes in this Consultation Document 17/26 to further specify the obligations relating to transparency and price control contained in Sections 10 and 12 of the WCA Draft Decision Instrument annexed to ComReg Document No 16/96.

Obligations relating to the market for fixed access and call origination provided at a fixed location

A 3.7 By ComReg Decision D05/15 (SMP FACO Decision), and pursuant to Regulations 25 and 26 of the Framework Regulations, ComReg designated Eircom as having SMP on the market for call origination on the public telephone network provided at a fixed location (the “FACO” market).

A 3.8 Under Section 12 of the Decision Instrument annexed to ComReg Decision D05/15, and pursuant to Regulation 13 of the Access Regulations, ComReg is proposing to impose obligations relating to price control on Eircom.

A 3.9 Pursuant to Regulation 18 of the Access Regulations, ComReg proposes in this Consultation Document 17/26 to further specify the obligations relating to the price control contained in Section 12 of the Decision Instrument annexed to ComReg Decision D05/15.

Consultation requirements:

A 3.10 Regulation 12(3) of the Framework Regulations provides that, except in cases falling within Regulation 13(8) (i.e. exceptional cases involving urgency), before taking a measure which has a significant impact on a relevant market, ComReg must publish the text of the proposed measure, give the reasons for it, including information as to which of ComReg's statutory powers gives rise to the measure, and specify the period within which submissions relating to the proposal may be made by interested parties. Regulation 12(4) states that ComReg, having considered any representations received under Regulation 12(3), may take the measure with or without amendment. Regulation 12 implements Article 6 of the Framework Directive.

A 3.11 Regulation 13(3) of the Framework Regulations provides that, upon completion of the consultation provided for in Regulation 12, where ComReg intends to take a measure which falls within the scope of Regulation 26 or 27 of the Framework Regulations, or Regulation 6 or 8 of the Access Regulations, and which would affect trade between Member States, it shall make the draft measure accessible to the European Commission, BEREC and the NRAs in other Member States at the same time, together with the reasoning on which the measure is based. Regulation 13 implements Article 7 of the Framework Directive.

Annex: 4 Glossary of Terms

The glossary is for guidance purposes. It is intended to help the reader in understanding this Draft Decision document, but is not intended to be a legal or other interpretation of acronyms and terms.

<u>Acronym</u>	<u>Full Title</u>	<u>Description</u>
Access Regulations	European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011)	They transpose Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 (as amended) on access to, and interconnection of, electronic communications networks and associated facilities, in to Irish law.
ADSL	Asymmetric Digital Subscriber Line	A data communications technology that enables faster data transmission over copper telephone lines than a conventional voiceband modem can provide.
ADSL2 Plus	Asymmetric Digital Subscriber Line 2 Plus	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.
ARO	Access Reference Offer	A contract containing the various prices and terms and conditions that in Ireland, Eircom offers to OAOs for access to its network.
Backhaul	Backhaul	Infrastructure that enables the transmission of voice and data traffic from a remote site to a central site.
Bitstream	Bitstream	A system whereby wireline incumbent installs a high speed access link to the customer's premises (e.g., by installing ADSL equipment in the local access network) and then makes this access

link available to third parties, to enable them to provide high speed services to customers. This type of access does not entail any third party access to the copper pair in the local loop.

Broadband Broadband

Telecommunication in which a wide band of frequencies is available to transmit information. Because a wide band of frequencies is available, information can be multiplexed and sent on many different frequencies or channels within the band concurrently, allowing more information to be transmitted in a given amount of time.

BU-LRAIC plus Bottom Up Long Run Average Incremental Cost Plus

BU-LRAIC plus is the costing methodology used to estimate the “LRAIC plus” of an efficient operator which is derived from an economic and/or engineering model of an efficient network. The LRAIC plus costs are the average efficiently incurred directly attributable variable and fixed costs, plus an appropriate apportionment of joint and common costs.

Cable Cable

A system of providing television to end users via radio frequency signals. It is transmitted to televisions through fixed optical fibres or coaxial cables as opposed to the over-the-air method used in traditional television broadcasting (via radio waves) in which a television antenna is required.

CCA Current cost accounting.

A system of valuing assets based on their replacement cost rather than their cost when purchased or produced.

Cost Orientation

A form of price control whereby prices are set be reference to associated costs.

ComReg	Commission for Communications Regulation.	National regulatory agency for Ireland.
DCCAE	The Department of Communications, Climate Action and Environment	The department of central Government in Ireland of the same name.
Download	Download	To bring files down from the internet and put them on a hard drive so they can be worked on locally.
DP	Distribution Point	A point within a network where the cable or fibre terminates prior to distribution to end customers.
Drop Wire	Drop Wire	Connecting wire from pole to customer premises.
D-side	Distribution side	Access network from exchange to customer premises.
DSL	Digital subscriber line	A family of technologies that provide digital data transmission over the wires of a local telephone network.
DSLAM	Digital Subscriber Line Access Multiplexer	Allows telephone lines to make faster connections to the Internet. It is a network device, located near the customer's location, which connects multiple customer Digital Subscriber Lines (DSLs) to a high-speed Internet backbone line where multiple data streams are combined into one signal over a shared medium.
Ducts	Ducts	Tubes through which cables are laid.
	Economic Depreciation	With economic depreciation an exercise is undertaken to estimate amongst other things, future demand and operating costs and then the cost of the asset is allocated in a manner that optimally allocates all costs associated with the

		asset to the revenues through the assets life.
E-side	Exchange side	Access network within an exchange.
FAC	Fully attributed costs	An accounting method to distribute all costs among a firm's various products and services; hence, the FAC may include costs not directly associated with a particular product or service
FCM	Financial Capital Maintenance	Under CCA, FCM is a concept that considers the financial capability of the local loop operator is maintained. Surpluses or deficits on the restatement of net assets to current cost are put in the income statement.
FDC	Fully distributed costs	See "FAC" Fully attributed costs.
Fibre	Fibre	Optical fibre is a glass or plastic fibre designed to guide light along its length. Optical fibres are widely used in fibre-optic communication, which permits transmission over longer distances and at higher data rates than other forms of communication. Fibres are used instead of metal wires because signals travel along them with less loss, and they are immune to electromagnetic interference
FTTH	Fibre to the home	A form of fibre optic communication delivery in which the optical signal reaches the end user's living or office space.
FWA	Fixed wireless access	The use of radio links for the transmission of voice and data communications.
GRC	Gross replacement cost	The value of a brand new asset providing the same level of functionality and capacity as the existing asset.

HCA	Historical cost accounting	A system where assets are valued at their original cost, less accumulated depreciation.
Incumbent	Incumbent	Existing companies often first established as regulated monopolies.
IP	Internet Protocol	Method for moving information from one network to another on the internet.
ISDN	Integrated services digital network	Provision of dial up services at twice the speed of standard telephone connections.
Jumpering	Jumpering	Physically cross-connecting OAO and incumbents equipment using copper or fibre cables, within an exchange (copper wire pairs on the MDF –main dist frame, Co-Ax cable on the DDF-digital distribution frame, Optical jumpers on the ODF (optical dist frame), or within a street cabinet.
KB	Kilobit	One thousand bytes.
Last Mile	Last mile	The last mile is the final leg of delivering connectivity from a communications provider to a customer. Usually referred to by the telecommunications and cable television industries, it is typically seen as an expensive challenge because “fanning out” wires and cables is a considerable physical undertaking.
LLU	Local loop unbundling	The regulatory process of allowing multiple telecommunications operators’ use of connections from the incumbent’s telephone exchange's to the customer's premises.
Local Loop	Local loop	The physical circuit connecting the network termination point at the subscriber's premises to the main distribution frame or equivalent facility in the fixed public telephone network provider’s network.

Line Share	Line share	Line share provides OAOs with shared use of a metallic path between an Eircom exchange facility and a customer's premises. Eircom retains the voice-band frequency spectrum of the circuit and continues to provide voice services and the OAO is able to use the remainder of the frequency spectrum.
Margin Squeeze	Margin Squeeze	A margin or price squeeze occurs when the difference between the wholesale price and the retail price of the final good or service does not give an efficient downstream firm a reasonable profit margin.
MB	Megabit	One thousand kilobits.
MDF	Main distribution frames.	A signal distribution frame for connecting equipment (inside an exchange) to cables and subscriber carrier equipment (outside an exchange).
Naked-DSL	Naked Digital Subscriber Line	SABB, stand-alone broadband) provides a standalone DSL (Digital Subscriber Line) broadband service over the Local Loop, without a Public Switched Telephone Network (PSTN) service.
Narrowband	Narrowband	Telecommunication that carries voice information in a narrow band of frequencies.
NBP	National broadband plan	Government initiative to develop broadband infrastructure in the more rural towns and villages in Ireland to give access to high-speed broadband.
NGA	Next generation access	Next Generation Access refers to the introduction of new products including super-fast broadband.

NGN	Next generation networks	The creation of an all IP environment (sometimes referred to as “Next Generation core networks”) and the introduction of high-speed high-bandwidth access networks (often called “Next Generation access networks or NGA networks”).
Node	Node	A point of connection on a network.
NRA	National regulatory agency	A state or government agency which regulates businesses in the public interest.
NRC	Net replacement cost	Value of another asset (of the same age) providing the same level of functionality and capacity as the existing asset.
NTU	Network termination unit	Terminating equipment which is placed in the customer’s premises which presents the physical circuit interface to the customer and to which the customer connects their equipment
OAO	Other authorised operator(s)	A fixed operator other than the incumbent, providing telecommunication services.
OCM	Operating Capital Maintenance	Under CCA, OCM is a concept that considers the operating capability of the local loop operator is maintained. Surpluses or deficits on the restatement of net assets to current cost are put in the balance sheet in the current cost reserve.
POTS	“Plain old telephone service”	Standard telephone service that most homes use. In contrast, telephone services based on high-speed, digital communications lines are differentiated by speed and bandwidth.
	Predatory pricing	Predatory pricing takes place when a dominant firm sells a good or service below costs of production for a

		sustained period of time, with the intention of deterring entry, or putting a rival out of business, enabling the dominant firm to further increase its market power and later its accumulated profits
PSTN	Public switched telephone network	PSTN refers to the international telephone system based on copper wires and carrying analogue voice data. This is in contrast to newer telephone networks based on digital technologies such as ISDN.
	Retail Minus	This is a form of price control whereby the SMP's wholesale price is set by reference to its retail price minus an appropriate margin to enable OAOs to cover their retail costs and compete with the SMP.
SABB	Stand Alone Broadband	ADSL/ADSL2plus service delivered over a 2-wire copper pair without a PSTN voice telephony switch.
SB-WLR	Single Billing Wholesale Line Rental	Single Billing through Wholesale Line Rental means that the customer has no relationship with Eircom, and all of the interfaces (ordering, billing, and fault repair) are with the Carrier Pre Select Operator (CPSO). The CPSO and Eircom have a separate contract for wholesale line rental. This product is only available in conjunction with Carrier Pre-Selection 'all calls'
Scorched earth	Scorched earth	A model that is based on an ideal network topology and not the existing network topology of the operator.
Scorched node	Scorched node	A model that takes as its starting point the existing network topology of the operator.

SLU	Sub loop unbundling	Process by which a sub-section of part of the local loop is unbundled.
SMP	Significant market power	A position which is equivalent to dominance of that market, that is to say a position of economic strength affording an undertaking the power to behave to an appreciable extent, independently of its competitors, customers, and, ultimately, end users.
	Standard Annuities	This approach calculates, over time, an increasing depreciation charge and a decreasing cost of capital resulting in a constant annualised charge and price stability given stable asset prices and demand.
	Sunk Costs	A cost which has already been incurred and cannot be recovered.
	Tilted Annuities	A tilted annuity incorporates a tilt in its formula which facilitates the calculation of annuities that evolve in line with asset price changes (it is therefore a current cost approach).
ULMP	Unbundled local metallic path	ULMP provides OAOs with exclusive use of a metallic path between the incumbents exchange facility and a customer's premises.
VoIP	Voice over internet protocol	The transport of voice traffic across the internet.
WCA Market	WCA Market	The market for wholesale central access for mass market products at a fixed location - included in Market 3b.
WLA Market	WLA Market	The market for wholesale local access at a fixed location – included in Market 3a.

Annex: 5 Consultation Questions

Section	Page
Q. 1 Do you have any further comments regarding the pricing proposals in ComReg Document 16/96 (WLA / WCA Market Review) in light of the pricing obligations further specified in this Draft Decision? Please provide reasons for your response.	8
Q. 2 Do you agree with ComReg’s preliminary view that the BU-LRAIC+ methodology should be applied to determine the appropriate level of costs associated with the provision of FTTC based VUA (including EVDSL) in the WLA Market and for FTTC based Bitstream and current generation Bitstream and BMB in the Regional WCA Market? Please provide reasons for your response.....	59
Q. 3 Do you agree with ComReg’s preliminary views regarding the proposed costing methodology for Reusable Assets, Non-reusable Assets and active / other assets in the provision of FTTC based VUA (including EVDSL), FTTC based Bitstream and current generation Bitstream and BMB services? Please provide reasons for your response.	64
Q. 4 Do you agree with the proposed timeframe of the model and with the proposed approach and assumptions used in determining the service volumes / demand for FTTC based VUA (including EVDSL) and FTTC based Bitstream in the NGA Cost Model? Please provide reasons for your response.	77
Q. 5 Do you agree with ComReg’s proposed modelling approach for determining the demand and costs inputs associated with the provision of FTTC based VUA, including Remote VUA, Local VUA and EVDSL services? Please provide reasons for your response.	94
Q. 6 Do you agree with the proposed inputs and assumptions in the NGA Cost Model for determining the costs associated with the provision of FTTC based Bitstream? Please provide reasons for your response.....	97
Q. 7 Do you agree with the proposed approach for determining the port rental costs for POTS based FTTC NGA services going forward and the proposed additional port rental price for POTS based FTTC services of €4.96? Please provide reasons for your response.	98
Q. 8 Do you agree with ComReg’s preliminary view that a consistent monthly or annual charge should apply for each year of the price control period in relation to the NGA Cost Model and NGN Core Model? Please provide reasons for your response.	100
Q. 9 Do you agree with ComReg’s preliminary view that the single monthly rental charge for FTTC based VUA (including EVDSL based VUA) should be based on the BU-LRAIC+ methodology generally and Eircom’s Indexed RAB for Reusable	

Assets in those exchanges where Eircom has deployed active FTTC and EVDSL lines? Please provide reasons for your response. 112

Q. 10 Do you agree that in the exceptional case where Eircom reduces the price for FTTC based VUA that any such reduction should also be reflected in the price for FTTC based Bitstream subject to the price floors requirements in Chapter 12 of this document and ComReg’s regulatory approval? Please provide reasons for your response. 112

Q. 11 Do you agree with ComReg’s preliminary view that at the time of the Decision the FTTC based VUA and EVDSL footprint should be locked-in for the purposes of setting the single FTTC based VUA (including EVDSL based VUA) monthly rental price for the entire price control period? Please provide reasons for your response. 112

Q. 12 Do you agree with ComReg’s preliminary views that it is appropriate to maintain a link between the price for FTTC based VUA (including EVDSL) and the price for LLU such that any changes to the underlying costs (e.g. SLU) should be applied consistently to the price of both services? Please provide reasons for your response. 115

Q. 13 Do you agree with ComReg’s preliminary view that the monthly rental charge for FTTC based Bitstream should be based on the BU-LRAIC+ methodology and Eircom’s Indexed RAB applied to Reusable Assets based on those Local VUA sites yet to be unbundled in the Regional WCA Market and with an adjustment to Bitstream specific costs to reflect the scale of a hypothetical SEO with a 25% retail broadband market share? Please provide reasons for your response. 120

Q. 14 Do you agree with ComReg’s preliminary view that the FTTC based Bitstream footprint should be locked-in at the date of the Decision for the purposes of setting the FTTC based Bitstream monthly rental price in the Regional WCA Market for the entire price control period? Please provide reasons for your response. 120

Q. 15 Do you agree that in exceptional cases only Eircom should be allowed to reduce the price for FTTC based Bitstream so long as any such reduction is reflected in the price for FTTC based VUA (in order to maintain a sufficient economic space between the two services) and subject to the price floor requirements in Chapter 12 of this document and ComReg’s regulatory approval? Please provide reasons for your response. 120

Q. 16 Do you agree with the proposed principles, inputs and assumptions in the NGN Core Model for determining the costs associated with the provision of broadband services? Please provide reasons for your response. 143

Q. 17 Do you agree with ComReg’s preliminary view that traffic costs on the core network should be allocated based on revenue per user (option 3 above)? Please provide reasons for your response. 147

Q. 18 Do you agree with ComReg’s preliminary view that the monthly price for current generation Bitstream and BMB services should be based on the average

BU-LRAIC+ costs across the Regional WCA Market as set out in Figure 31 (for 2017/18) and in Figure 37 (of Chapter 14) for each year of the proposed price control period? Please provide reasons for your response. 159

Q. 19 Do you consider that a price floor for CGA Bitstream services is no longer required for the proposed price control period given the declining demand in CGA investment? Please provide reasons for your response..... 167

Q. 20 If you consider that a price floor for CGA services is appropriate, do you agree with ComReg’s preliminary view on the margin squeeze assumptions and the indicative price floors (for 2017/18) for current generation Bitstream services from the NGN Core Model? Please provide reasons for your response. 167

Q. 21 Do you consider that the price points for CGA Bitstream and BMB services should be set based on Eircom’s BU-LRAIC+ costs or the BU-LRAIC+ costs of a REO i.e., the price floors? Please provide reasons for your response..... 167

Q. 22 Do you agree with ComReg’s preliminary views regarding the principles of the wholesale margin squeeze test between FTTH based VUA and FTTH based Bitstream? Please provide reasons for your response..... 178

Q. 23 Do you agree with ComReg’s preliminary views regarding the principles of the margin squeeze test between the price of WLA services in the footprint corresponding to the Urban WCA Market and retail services provided by way of WLA inputs in the footprint corresponding to the Urban WCA Market? Please provide reasons for your response..... 188

Q. 24 Do you agree with ComReg’s preliminary views regarding the margin squeeze principles for the wholesale End-to-end margin squeeze tests for both current generation and next generation? Please provide reasons for your response. ... 195

Q. 25 Do you agree with ComReg’s preliminary view regarding the margin squeeze principles for the retail margin squeeze test for NGA services in the Regional WCA Market? Please provide reasons for your response 206

Q. 26 Do you agree with ComReg’s preliminary view on the margin squeeze principles that should apply to the retail margin squeeze test for current generation services in Regional Area 1 and Regional Area 2 of the Regional WCA Market? Please provide reasons for your response..... 214

Q. 27 Do you agree with ComReg’s preliminary view that the price control period should be for three years but should remain in place any further notice by ComReg and that Eircom should review the models annually for material / exceptional changes? Please provide reasons for your response. 216

Q. 28 Do you agree with ComReg’s preliminary views regarding the pre-notification procedures that should apply to all proposed wholesale price changes or for new wholesale prices associated with the price control obligation for all WLA and WCA services mandated in the WLA / WCA Market Review? Please provide reasons for your response. 219

- Q. 29 Do you agree that there should be no wholesale promotions and discounts going forward for WLA or WCA services? Please provide reasons for your response. 219
- Q. 30 Do you agree with ComReg’s preliminary views that pre-notification and pre-clearance is appropriate for retail price changes in the WLA Market and the Regional WCA Market? Please provide reasons for your response. 222
- Q. 31 Do you agree with ComReg’s preliminary view regarding the regulatory approval mechanism and that in exceptional circumstances only Eircom may be allowed to reduce wholesale prices for FTTC based NGA services (VUA and Bitstream) below the regulated price so long as it does not breach the price floor requirements at paragraphs 12.54-12.55 and subject to ComReg’s approval? Please provide reasons for your response..... 229
- Q. 32 Do you agree with ComReg’s preliminary view regarding the regulatory approval mechanism (and pre-conditions at paragraph 12.54) that the price for FTTH based VUA should not go below the price floor at paragraph 12.72 and that Eircom’s full deployment costs for FTTH based VUA should be calculated with reference to Eircom’s own business case / plan? Please provide reasons for your response 230
- Q. 33 Do you agree with ComReg’s preliminary view that in the context of the price floor for SABB in Regional Area 2 (as per Section 4.2 of the Decision Instrument in Annex 2 of 2016 Access Pricing Decision) that the footprint of the “Modified LEA” should be replaced by those exchanges in Regional Area 1 excluding those exchanges in Criterion 5 of the 2013 Bundles Decision? Please provide reasons for your response. 230
- Q. 34 Do you agree with ComReg’s preliminary view that the connection costs associated with CGA and NGA services should be recovered through a combination of an upfront connection charge and a monthly rental charge as set out at paragraph 13.43? Please provide reasons for your response. 240
- Q. 35 Do you agree with ComReg’s preliminary view that the WEIL charges, including BECS and BECS over WEIL, in the WLA Market and the Regional WCA Market should be based on a BU-LRAIC+ methodology? Please provide reasons for your response. 242
- Q. 36 Do you have any comments on the Regulatory Impact Assessment and in your opinion are there other factors which ComReg should consider in completing its Regulatory Impact Assessment? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views..... 284
- Q. 37 Do you believe that the draft text of the proposed Decision Instrument for the Wholesale Local Access market at a fixed location (WLA Market or Market 3a) is from a legal, technical and practical perspective, sufficiently detailed, clear and

precise with regards to the specifics proposed? Please explain your response and provide details of any specific amendments you believe are required. 300

Q. 38 Do you believe that the draft text of the proposed Decision Instrument for the Wholesale Central Access market for mass market products at a fixed location is from a legal, technical and practical perspective, sufficiently detailed, clear and precise with regards to the specifics proposed? Please explain your response and provide details of any specific amendments you believe are required. 318

Annex: 6 TERA Report

A 6.1 Please refer to ComReg Document No 17/26A.

Annex: 7 Jacobs Report

A 7.1 Please refer to ComReg Document No 17/26B.

Annex: 8 Draft monthly prices

Table 1: Proposed monthly prices for FTTC based NGA services (with an assumed implementation date of 1 July)

Services	€	€	€	€	€
	2017/18	2018/19	2019/20	2020/21	2021/22
FTTC based VUA¹⁴⁴	16.50*	16.86*	17.21*	17.59*	17.98*
FTTC based Bitstream:					
<u>National handover:</u>					
<i>Per port</i>	21.22*	21.66*	22.11*	22.60*	23.04*
<i>Per Mbps</i>	0.78	0.61	0.46	0.35	0.32
<u>Regional Handover:</u>					
<i>Per port</i>	18.75*	19.13*	19.52*	19.94*	20.34*
<i>Per Mbps</i>	0.29	0.22	0.17	0.13	0.11
<u>Assumed 90% / 10% mix:</u>					
<i>Per port</i>	18.99*	19.38*	19.78*	20.20*	20.61*
<i>Per Mbps</i>	0.34	0.26	0.20	0.15	0.13
POTS based FTTC NGA service					
	4.96	4.96	4.96	4.96	4.96

*Including fault repair and provisioning / migration costs

¹⁴⁴ This includes the average costs for Remote VUA, Local VUA and EVDSL.

Table 2: Proposed BU-LRAIC+ monthly prices for current generation Bitstream and BMB services in the Regional WCA Market (assumed implementation date of 1 July 2017)

<u>CGA Bitstream BU-LRAIC+ prices</u>	€	€	€	€	€
	2017/18	2018/19	2019/20	2020/21	2021/22
<u>BMB: National handover:</u>					
<i>Per port</i>	6.62*	6.79*	6.99*	7.16*	7.14*
<i>Per Mbps</i>	1.18	0.88	0.68	0.53	0.42
<u>BMB: Regional handover:</u>					
<i>Per port</i>	5.65*	5.79*	5.95*	6.08*	6.02*
<i>Per Mbps</i>	0.52	0.38	0.29	0.22	0.18
Bitstream IP¹⁴⁵	5.93*	6.07*	6.24*	6.21*	5.96*

*Including line share and fault repair

Table 3: Indicative price floors for current generation Bitstream services:

Description	Per port	Per Mbps
	€ 2017/18	€ 2017/18
<u>Option 1: OAOs present in sites already unbundled (79 sites)</u>		
National handover	6.23*	1.42
Regional handover	4.29*	0.61
<u>Option 2: OAOs present in all 141 Local VUA sites</u>		
National handover	6.53*	1.45
Regional handover	4.46*	0.62

*Including line share and fault repair

¹⁴⁵ Bitstream IP product tariffs have been structured to recover a combination of the costs of the port facility and traffic usage. The proposed tariffs listed here are based on a weighted average assumption of traffic use by the Bitstream IP user for each year, and on the handoff of traffic through a mixture of National and Regional Handover.

Annex: 9 Proposed take-up curve

Years	Achieved migration
1	∞%
2	∞%
3	∞%
4	∞%
5	∞%
6	∞%
7	∞%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%
14	100%
15	100%
16	100%
17	100%
18	100%
19	100%
20	100%

Annex: 10 Draft criteria used to establish inclusion of exchanges in Regional Area 1

A 10.1 “Regional Area 1” means the total geographic area of the Regional WCA Market comprising individual exchange areas each of which satisfies at least one of the following criteria:

(i) Criterion 1: An exchange area in which:

(a) at least one AIP is providing telecommunications services at the retail level to End-Users; and

(b) at least one OAO (not being an AIP) is providing telecommunications services at the retail level to End-Users from the relevant exchange using LLU or VUA (either by means of direct provision by that OAO to End-Users or via a wholesale service provided to that OAO by another OAO by means of LLU or VUA), subject to the condition that the said AIP(s) and the said OAO(s) using LLU or VUA must, all taken collectively, have a reasonable market share and reasonable market coverage in the relevant exchange area;

(ii) Criterion 2: An exchange area in which at least two OAOs (not being AIPs) are providing telecommunications services at the retail level to End-Users from the relevant exchange using LLU or VUA (either by means of direct provision by those OAO(s) to End-Users or via a wholesale service provided to those OAO(s) by another OAO by means of LLU or VUA) - subject to the condition that the said OAOs using LLU or VUA must, taken collectively, have a reasonable market share and reasonable market coverage in the relevant exchange area;

(iii) Criterion 3: An exchange area in which:

(a) at least one AIP is providing telecommunications services at the retail level to End-Users; and

(b) Eircom (and OAOs (not being AIPs) relying on wholesale inputs provided by Eircom) are providing retail fixed broadband services to less than 20 per cent of the premises in that exchange area, subject to the condition that the said AIP(s) must, taken collectively, have a reasonable market share and reasonable market coverage in the relevant exchange area;

(iv) Criterion 4: An exchange area in respect of which Eircom has provided at least six months prior notification (or such shorter period as may be agreed by ComReg) on its publicly available wholesale website regarding the launch of NGA services by Eircom in cabinets in the relevant exchange area, subject to the condition that those proposed NGA-enabled cabinets must serve at least a reasonable number of lines in that exchange area;

(v) Criterion 5: exceptionally, and subject to case-by-case assessment by ComReg, an exchange area in which the relevant exchange:

(a) Is surrounded by Qualifying Exchanges; or

(b) Serves fewer than 500 residential premises and is located either adjacent to, or in reasonable proximity to, Qualifying Exchange(s); or

(c) Is determined, to the satisfaction of ComReg, to have an economic affinity with adjacent Qualifying Exchange(s), subject to the total residential premises served by Qualifying Exchanges under this sub-criterion 5(c) not exceeding 5% of the total residential premises in the Larger Exchange Area (excluding those residential premises which are served by Qualifying Exchanges under sub-criterion 5(b) above).

Annex: 11 Letter correspondence between ComReg and Eircom

A 11.1 Please refer to ComReg Document No 17/26C.