



Commission for
Communications Regulation

Next Generation Access ('NGA'):

Proposed Remedies for Next Generation Access Markets

**Response to Consultation, Further Consultation
and draft decision**

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Additional Information

All responses to the further consultation should be clearly marked:- “Submissions to ComReg 12/27”, and sent by post, facsimile, e-mail or on-line at www.comreg.ie (current consultations), to arrive on or before **18 May 2012**, to:

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Chapter 1

1 Introduction

- 1.1 Next generation access (“NGA”) facilitates the provision of very high speed broadband (and other) services. The European Commission has defined NGA as being;

*“..... 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 already existing copper networks. In most cases NGAs are the result of an upgrade of an already existing copper or co-axial access network”.*¹

- 1.2 ComReg has responsibility to promote competition in the electronic communications markets and is committed to supporting the aims of the European Digital Agenda (“EDA”). The EDA sets targets for achieving increased penetration of super fast broadband in Europe by 2020², with a view to driving economic growth and competitiveness throughout the single market³. There is a fundamental role of communications and broadband deployment in terms of EU investment, job creation and overall economic recovery. Specifically, for the regulation of next generation services, we are guided by the policies set out in the European Commission’s NGA Recommendation⁴, which aims to promote efficient investment and innovation, in new and enhanced infrastructure. It guides that NRAs should take due account of the risks incurred by all investing undertakings and the need to maintain effective competition, which is an important driver of investment over time. Consumers are expected to benefit from further roll out of next generation services, offering significantly faster broadband access and advanced services such as IPTV and VoIP.

¹ Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU); Definitions, section 11, page 6.

² Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Digital Agenda for Europe. Brussels, 26.8.2010. COM(2010) 245 final/2.

³ Implementation of the EDA targets in Ireland is one of the issues being considered by the Next Generation Broadband Task Force, which is chaired by the Minister for Communications, Energy and Natural Resources, and which is expected to report shortly.

⁴ Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU).

- 1.3 On 28 July 2011, Eircom announced its plans to upgrade its existing copper access network with a NGA program that will pass 900,000 homes and 100,000 businesses in a multi-year rollout⁵. The announcement contained the details of the Phase 1 rollout, including its intention to rollout to 100,000 premises by summer 2012. Ten locations are included in the first phase of rollout. Furthermore, on 20 September 2011, Eircom presented to Industry further details of its plan to deploy NGA⁶. This was followed, on 26 September 2011, by initiation of the Eircom's fibre pilot programme⁷.
- 1.4 Eircom has recently announced an extension of its planned investment, with Phase 2 of its NGA roll out. This will see an upgrade of a further 12 exchanges across Ireland, passing an additional 125,000 premises⁸. ComReg welcomes Eircom's commitment to the planned investment in next generation services and note that this is central to the future strategy of the company⁹. In this uncertain economic climate, when the investment environment is challenging, ComReg welcomes Eircom's strategic and financial commitment to infrastructure investment.
- 1.5 Most of the roll out will be in the form of Fibre to the Cabinet ("FTTC"). This is where fibre optic cable is rolled out to a streetside cabinet with the final connection to a home or premises over legacy copper. According to Eircom this will allow for speeds of up to 50 mega bit per second ("mb/s") with possible improvements in future.
- 1.6 A small proportion of 5% to 10% of copper lines in these areas will be replaced in their entirety by fibre. The lines will be able to offer speeds of at least 100 Mb/s.

⁵http://pressroom.eircom.net/press_releases/article/eircom_Announces_Over_100M_Investment_in_Phase_1_of_Planned_Fibre_Rollout/

⁶ See <http://www.nextgenerationnetwork.ie/ngn-access>.

⁷ The pilot involves the build out of fibre optic cables using Fibre to the Home and Fibre to the cabinet to 16,000 homes and business served by Sandyford, Wexford town, Dundrum and Priory park exchanges for further details see. <http://www.fibrepilot.ie/index>.

⁸ On the 30th of March 2012, Eircom entered an examinership process, whereby an interim examiner was appointed by the High Court. We note on that same date, Eircom restated its commitment to its NGA strategy.

⁹ Communicated on 30 March 2012 by Chief Executive of eircom Group, Paul Donovan in its application to enter the examinership process; Eircom press release on 30 March 2012.

- 1.7 ComReg's statutory functions include the regulation of the market for wholesale physical network infrastructure access which has been identified as market 4 of the European Commission's Recommendation of 17 December 2007 on relevant product and services markets within the electronic communications sector susceptible to *ex ante* regulation (the 'Recommendation')¹⁰ (the "WPNIA market") and the market for wholesale broadband access (market 5 of the Recommendation (the "WBA market")).
- 1.8 The WPNIA and WBA markets are those most closely related with the provision of wholesale inputs to support the provision of retail broadband services. These markets are also the most relevant to the challenges raised by the transition from copper to fibre based networks.
- 1.9 Eircom has been found to have significant market power ("SMP") in the markets for WPNIA and WBA and obligations have been mandated. In ComReg Decision No. D05/10¹¹ (the "WPNIA Decision") and ComReg Decision No. D06/11¹² (the "WBA Decision") ComReg imposed certain SMP obligations for current generation WPNIA and WBA services and facilities pursuant to Regulations 8, 9, 10, 11, 12 and 14 of the Access Regulations¹³. The WPNIA Decision and WBA Decision also imposed certain high-level obligations for next generation services and facilities. This consultation paper contains draft decision instruments (the "draft Decision Instrument(s)") which propose to further specify those high-level next generation WPNIA and WBA obligations and in some cases amend current generation obligations.
- 1.10 The purpose of this consultation is to assess the appropriate form of regulatory obligations for NGA products and services in the WPNIA market and the WBA market.

¹⁰ European Commission Recommendation of 17 December 2007 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 344, 28.12.2007, p. 65).

¹¹ Response to Consultation and Decision Document entitled "Wholesale (Physical) Network Infrastructure Access (Market 4)" (Document No.10/39).

¹² Response to Consultation and Decision Document entitled "Market Review: Wholesale Broadband Access (Market 5)", (ComReg Document No. 11/49)).

¹³ European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011) (the Access Regulations).

- 1.11 In accordance with its objectives set out in section 12 of the Communications Regulation Act 2002-2011¹⁴ (the “Communications Regulation Act”) together with Regulation 16 of the Framework Regulations¹⁵ and in accordance with its functions set out in section 10 of the Communications Regulation Act, ComReg has the responsibility to promote competition in the electronic communications markets given its essential role in safeguarding choices and prices for consumers; in particular in relation to technological change and transition to fibre and where the European Digital Agenda targets underpin our regulatory policy.
- 1.12 On the 20 September 2010, the European Commission published a recommendation on regulated access to Next Generation Access Networks. (the “NGA Recommendation”)¹⁶. The NGA Recommendation aims to promote efficient investment and innovation in new and enhanced infrastructure, taking due account of the risks incurred by all investing undertakings and the need to maintain effective competition, which is an important driver of investment over time¹⁷. The NGA Recommendation also highlights the importance for regulatory clarity.
- 1.13 On 26 May 2011, ComReg published a consultation entitled “Next Generation Access (NGA) Remedies in Wholesale Regulated Markets - WPNIA and WBA Remedies in an NGA environment” (the “First NGA Consultation”)¹⁸. The First NGA Consultation discussed the NGA Recommendation and invited views on appropriate remedies for NGA products and services in the regulated markets. The views and contributions of respondents have informed our understanding of the issues and appropriate policy choices which are set out in this consultation paper (the “Second NGA Consultation” paper). ComReg is statutorily obliged to take utmost account of the NGA Recommendation and recognises the risks and costs that are associated with striking the right balance for regulation of next generation services. Understanding the importance of upholding its regulatory objectives, ComReg is mindful that the perceived cost of regulation may act as a disincentive to investment in NGA infrastructure.

¹⁴ 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).

¹⁵ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), (the Framework Regulations)

¹⁶ Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (Text with EEA relevance) (2010/572/EU).

¹⁷ See, inter alia, paragraph 2 of the NGA Recommendation.

¹⁸ “Next Generation Access (NGA) Remedies in Wholesale Regulated Markets Wholesale Physical Network Infrastructure Access (WPNIA) and Wholesale Broadband Access (WBA) Remedies in an NGA Environment” ComReg Document No. 11/40, dated 26 May 2011.

- 1.14 Since publication of the First NGA Consultation and the receipt of a number of responses from operators, there have been ongoing industry discussions and workshops between Eircom, Industry and ComReg. This has informed the main discussion points which are now included in Second NGA Consultation paper.
- 1.15 All Industry input and responses to the First NGA Consultation have been closely considered. Given the high level of principles examined in the First Consultation, which focused on the application of the NGA Recommendation; moreover considering the breadth of issues examined in this consultation, we have not responded on every issue raised in the First Consultation. Representations made by the respondents have been considered in detail as part of our consideration of policy options and all the responses received have been published on our website¹⁹.
- 1.16 Our analysis of the appropriate pricing and costing methodology for NGA has been assisted by Oxera and the report can be found in Annex 8 of the consultation paper. The report is entitled “Eircom’s Next Generation Access Products: Pricing principles and methodologies” (the “Oxera Report”).
- 1.17 This document is structured as follows:
- Section 2 of this document contains the executive summary.
 - Section 3 of this document contains the regulatory challenges.
 - Section 4 of this document contains the background and the transition towards NGA.
 - Section 5 of this document contains the obligation to provide access in the WPNIA market.
 - Section 6 of this document contains the obligation to provide access in the WBA market.
 - Section 7 of this document contains the conditions of access common to the WPNIA market and the WBA market.
 - Section 8 of this document contains the obligation of non-discrimination in the WPNIA market and the WBA market.
 - Section 9 of this document contains the obligation of transparency in the WPNIA market and the WBA market.

¹⁹ “Submissions received in response to Consultation Next Generation Access (NGA) Remedies in Wholesale Regulated Markets: Wholesale Physical Network Infrastructure Access (WPNIA) and Wholesale Broadband Access (WBA) Remedies in an NGA Environment” ComReg Document No. 12/02, dated 03 February 2012.

- Section 10 of this document contains the obligations relating to the provision of NGA Services.
- Section 11 of this document contains the obligation of price control and cost accounting in the WPNIA and WBA markets.
- Section 12 contains the draft Decision Instrument for the WPNIA market.
- Section 13 of this document contains the draft Decision Instrument for the WBA market.
- Section 14 of this document contains the regulatory impact assessment (the “RIA”).
- Section 15 of this document contains the next steps following the publication of this consultation document.

Chapter 2

2 Executive Summary

2.1 Proposed Access obligations

Overview of proposed obligations for the WPNIA market

- 2.1 Pursuant to Regulation 12 of the Access Regulations the WPNIA Decision (ComReg Decision No. D05/10) imposed an obligation on Eircom to provide access to ducts. ComReg considers that Eircom should now have an obligation to provide access to civil engineering infrastructure²⁰, in particular duct and poles, where it is technically feasible and is economically viable. In certain circumstances there may be a finite portion of space available in a duct or a duct may have collapsed, and it would not be possible to grant access or the costs associated would be prohibitive. Where this is the case, access to dark fibre should be offered subject to certain conditions.
- 2.2 Where Fibre to the Home (“FTTH”) is deployed by Eircom, unbundled access to fibre loops should be offered from the exchange or the metropolitan point of presence (“MPOP”²¹). Currently Eircom has an obligation to provide unbundled access to the sub loop which provides access between a street-side cabinet and the end user (this is known as sub loop unbundling or “SLU”). To date, SLU has not been taken up by any operator.
- 2.3 We propose to maintain the SLU obligation unconditionally in areas that are likely to be outside the NGA footprint areas. Some operators have expressed an interest in this option for a number of reasons which are set out below. To ensure clarity, we outline the geographical scope of NGA remedies with specific relevance for the SLU:

²⁰ 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.

²¹ Metropolitan Point of Presence or (MPoP) means the point of inter-connection between the access and core networks. It is equivalent to the Main Distribution Frame (MDF) in the case of the copper access network. All NGA subscribers’ connections in a given area (usually a town or part of a town) are centralised to the MPoP on an Optical Distribution Frame (ODF).

A. NGA Footprint Area: is the geographic area served by Eircom's largest exchanges i.e. those with greater than 1,800 connections, which includes approximately 194 exchanges. A NGA footprint area is an area where fibre is likely to be deployed in the access network²².

B. Non-NGA Footprint Area: is the geographic area other than an area served by Eircom's largest exchanges i.e. those with less than 1,800 lines. In a Non-NGA footprint area it is unlikely that fibre will be deployed in the access network.

- 2.4 However, the appropriateness of the SLU obligation is not certain in NGA footprint areas. This is because Eircom has stated its intention to use vectoring, which is a bandwidth enhancing technology that maximises the broadband speed that can be achieved over copper. It appears that at this stage of technology development, vectoring is incompatible with co-location in the cabinet and hence is incompatible with SLU. It is also possible that other bandwidth technologies may emerge. The question arises as to whether ComReg should withdraw the SLU obligation now to encourage vectoring or to maintain the current SLU obligation. To understand how best to resolve this issue, three options are presented in this consultation to elicit the level of demand for SLU and operators' plans to deploy bandwidth enhancing technologies.

Option A

- **In non-NGA footprint areas:** SLU to be maintained.
- **In NGA footprint areas:** SLU shall be available only on a reasonable request basis, based on certain conditions.

Option B

- **In Non-NGA footprint areas:** SLU to be maintained.
- **In NGA footprint areas:** SLU to be withdrawn. The obligation will be reviewed and may be reinstated after three years in areas where bandwidth enhancing technologies have not been implemented.

Option C

- **In Non-NGA footprint areas:** SLU shall be maintained.

²² Given that this is confidential data this analysis will be provided to Eircom separately as part of the consultation process and Eircom will be required to confirm whether the proposal is a reasonable basis for determining the likely NGA Footprint Area.

- **In NGA footprint areas:** SLU to be maintained. However, Other Authorised Operators (OAOs) that unbundle the sub-loop will do so in the knowledge that the obligation to provide SLU could possibly be withdrawn, following consultation, in favour of facilitating the deployment of vectoring where bandwidth enhancing technologies are not deployed by the OAO.

Overview of proposed obligations for the WBA market

- 2.5 In the WBA market, ComReg is proposing to impose an obligation on Eircom to provide enhanced next generation Bitstream services and Virtual Unbundled Access (“VUA”) as access products over both the fibre to the home (“FTTH”) and Fibre to the Cabinet (“FTTC”) infrastructure.
- 2.6 ComReg is also proposing to impose an obligation on Eircom to provide a wholesale multicast feature and services. Multicast is an important feature allowing the efficient delivery of video over IP networks. It is essential that the multicast feature forms part of any NGA WBA service or facility as it is a non-replicable feature and capability, which will form an important dimension to the retail product offering of Eircom and others, particularly where triple play is available.

2.2 Conditions of access common to the WPNIA market and WBA market

- 2.7 ComReg considers that there are standards and conditions for the provision of access which are common to both WPNIA and WBA access products, which must be met, and on this basis ComReg is proposing to impose:
- an obligation to negotiate in good faith in terms of next generation WPNIA and WBA;
 - an obligation not to withdraw access to services and facilities already granted;
 - an obligation to provide access to Operations Support Systems (“OSS”) or similar systems;
 - all ancillary conditions attached to the access obligation including the provision and publication/agreement of Service Level Agreement; and
 - the obligations of fairness, reasonableness and timeliness in respect of access provided.

2.3 Non-discrimination obligation

- 2.8 In line with Regulation 10 of the Access Regulations, ComReg is proposing that an obligation of non-discrimination should apply to all NGA WPNIA and WBA services and processes. In particular, ComReg has outlined its interpretation and application of the standard of Equivalence of Inputs²³ (“EoI”) in the context of the non-discrimination obligation. The shift to a next generation access network will create an opportunity to deliver higher standards of equivalence to wholesale customers, in particular for processes and information systems which are developed for NGA.
- 2.9 Eircom has publicly offered to deliver a higher standard of equivalence to wholesale customers and we consider it proportionate to mandate EoI in all circumstances other than where an alternative standard can be justified by Eircom. On this basis, where Eircom can demonstrate to ComReg that reasonable steps were taken to meet the EoI standard or that it would be not be possible to provide next generation WPNIA and WBA services and facilities on an EoI basis, ComReg considers it proportionate that Eircom is allowed to provide such services and facilities on a Equivalence of Outputs (“EoO”) ²⁴ basis.
- 2.10 It is proposed that Eircom will have obligations to notify ComReg of changes to new products and existing products in advance of a retail launch to ensure compliance with its non-discrimination obligations. Specifically Eircom would be required to notify ComReg in advance of it being made available to its downstream arm:-
- seven months in advance of the retail offering, for new next generation WPNIA and WBA service or facilities.
 - three months in advance of the retail offering, for proposed amendments to existing next generation WPNIA and WBA services or facilities.
 - Such notifications should also include demonstration to ComReg that the service or facility of being offered on an EoI basis. Where EoI has not been provided and Eircom can demonstrate that reasonable steps were taken or that it was not be possible to provide services and

²³ Equivalence of Inputs (EoI) means that Eircom shall provide all services and information to all Access Seekers and to itself in the same timescales, and on the same terms and conditions (including price and service levels) by means of the same systems and processes. In particular, it includes the use by Eircom of such systems and processes in the same way and with the same degree of reliability and performance when providing services and information to all Access Seekers as well as to itself.

²⁴ Equivalence of Outputs (EoO) means that Eircom shall provide all wholesale access products to Access Seekers in a manner which is comparable or identical to those it provides to itself in terms of functionality and price, albeit potentially using different systems and processes.

facilities on an EoI basis, Eircom is allowed to provide such services and facilities on an EoO basis.

2.11 These timelines correspond to the notification requirements under the transparency obligations, set out in section 9, which relate to changes to the Access Reference Offer (“ARO”) or the Wholesale Broadband Access Reference Offer (“WBARO”).

2.4 Transparency and other obligations

2.12 Taking Regulation 9 of the Access Regulations into account, ComReg proposes that Eircom should maintain reference offers (“RO”) for WPNIA and WBA services and facilities on its wholesale website in the form of the ARO for WPNIA services and facilities and WBARO for WBA services and facilities²⁵. The proposed timelines for publication are set out below:

- Publication for launch of new next generation WPNIA and WBA services and facilities should be at least six months in advance of retail launch to industry and seven months in advance to ComReg. This should include all material details in respect of non price considerations.
- Non-price changes to ARO and WBARO (including prices for new services and facilities) should be published at least two months in advance of retail launch to industry, and supplied to ComReg at least three months in advance.
- Price changes should be published at least two months in advance of retail launch to industry and supplied three months in advance to ComReg.
- However, ComReg will have discretion to allow a derogation to required timelines where necessary and appropriate.

2.13 ComReg recommends that a statement of difference shall also be published on the Eircom Wholesale website, to identify and justify any differences between the services and facilities set out in the applicable RO and the comparable services and facilities which Eircom provides to itself.

²⁵ In the context of the WPNIA market this is the access reference offer or the “ARO” and in the context of the WBA market it is the wholesale broadband access reference offer or the “WBARO”.

- 2.14 ComReg also proposes that the publication of key performance indicators (“KPIs”)²⁶ and service level agreements (“SLAs”), should be developed for next generation WPNIA and WBA services and facilities along with performance metrics. It is also proposed that Eircom should maintain separated accounts and obligations relating to accounting separation.
- 2.15 Similarly to current generation products and services, ComReg recommends that Eircom should be obliged to provide and facilitate migrations, backhaul and co-location, on the basis that they are integral to a seamless provision of access.

2.5 Customer Premises Equipment (“CPE”)

- 2.16 Even in the presence of effective next generation WPNIA and WBA services and facilities from both a technical and pricing perspective, the corresponding provisioning and associated in-home activity is critical to the customer experience and influences the ability of OAOs to compete effectively. A vertically integrated SMP operator, with an extensive network would have the potential to leverage market power into the retail market and this may include the provisioning of in-home services. We therefore need to ensure that a level playing field exists and that there is no opportunity to leverage dominance in regulated wholesale markets, both price and non-price, into the downstream retail provisioning and in-home activity. We invite industry views on whether this is would be a concern and how it should be addressed other than through any non-discrimination obligation.

2.6 Price control obligation

- 2.17 The proposed price control mechanisms are imposed pursuant to Regulation 13 of the Access Regulations. On the whole, Eircom will be free to set retail prices as it sees fit. ComReg’s focus is to ensure that the wholesale prices for WPNIA and WBA products are set in a way that ensures that efficient wholesale customers can trade in an economically viable and sustainable way. The proposed pricing flexibility will assist Eircom to set wholesale prices in a way that allows it to manage, in an empirical manner, any extra risk resulting from uncertainty in terms of the real demand for next generation WPNIA and WBA services.

²⁶ “ComReg Decision No. D05/11” means ComReg Document No. 11/45 entitled “Response to Consultation and Decision on the Introduction of Key Performance Indicators for Regulated Markets” dated 29 June 2011 (the “KPI Decision”).

2.18 We propose that copper and fibre based services be priced in a consistent manner to reflect the view that they are chain substitutes for one another. However, we recognise that in the medium to long term it would be inefficient to maintain both current generation (copper) and next generation (fibre) access networks in parallel. These considerations suggest that it may be appropriate to encourage users to migrate to next generation based services at some point in the future. One obvious way to achieve this is by means of pricing incentives. In this Second NGA Consultation, ComReg consults on whether it is appropriate to maintain the consistency of copper and fibre access pricing for now; how long this policy should continue; and what triggers might be considered to introduce pricing incentives for migration to next generation.

Price control obligations relevant to the WPNIA Market

2.19 In general, ComReg is proposing that access products in the WPNIA market, should be charged at levels that are not in excess of cost.

2.20 Local Loop Unbundling (“LLU”) and SLU access products are currently based on the bottom-up long run average incremental cost plus (“BU-LRAIC plus”) methodology. In practice this is done by using the Copper Access Model which is the modelling tool used by ComReg to determine the cost of provision of LLU and SLU in Ireland.

2.21 In the context of NGA, we propose to introduce a further price ceiling for LLU and SLU, in the NGA Footprint Areas, where this is required to ensure a sufficient economic space with the VUA product. This would be calculated by reference to the price of VUA adjusted for the costs that an entrant operator using SLU would incur to provide VUA based on the application of the NGA Margin Squeeze Model, which is discussed in detail in section 11 of this document.

2.22 Therefore, we consider that in the NGA Footprint Areas the SLU price should be based on the lower of either:

- The maximum charge, as set out in ComReg Decision No D01/10 or as amended based on changes by Eircom to the underlying parameter(s) of the Copper Access Model as set out in ComReg Decision D01/10. This would require a review by ComReg.

or

- The revised charge derived by the application of the margin squeeze test between the VUA monthly charge and the SLU monthly charge based on the NGA Margin Squeeze Model.

- 2.23 Where the SLU price is reduced in either of the two cases above, Eircom would be required to ensure price consistency with the LLU price, where appropriate, based on the Copper Access Model, in the NGA Footprint Areas.
- 2.24 Consequently, the maximum prices of LLU and SLU in the NGA Footprint Areas will be the lower of the two ceilings referred to above.
- 2.25 Access to civil engineering infrastructure (“CEI”), including duct and poles access, is proposed to be priced at historical cost plus any incremental cost of remediation (if any) and ongoing maintenance cost plus a rate of return.
- 2.26 Given the likely bespoke nature of CEI access we propose to allow Eircom to agree prices with access seekers. If this cannot be done, within a three month period, ComReg may intervene.

Price control obligations relevant to the WBA Market

- 2.27 We propose that the next generation WBA products and services, (i.e. next generation Bitstream and VUA) should be priced by reference to the margin squeeze model (called the “NGA Margin Squeeze Model”). The NGA Margin Squeeze Model includes a number of wholesale margin squeeze tests as well as a retail test between NGA Bitstream and retail prices.
- 2.28 The outputs of the NGA Margin Squeeze Model are based on the various cost stacks assumed for each service along the value chain. Eircom will have the flexibility to set the retail prices. Depending on the retail price set, Eircom will determine the wholesale prices in line with the NGA Margin Squeeze Model. However, as Eircom will be subject to a number of margin squeeze tests, it can set the prices for NGA Bitstream and VUA at prices above these cost outputs where the retail margin squeeze test allows it. However, Eircom cannot price below these outputs without the appropriate adjustment to the SLU (and where appropriate to the LLU) access prices in the NGA Footprint Areas or where the underlying assumptions for usage and costs change materially. The outputs of the NGA Margin Squeeze Model are set out in subsection 11.10.5.
- 2.29 However, to the extent that there is no take-up of LLU and SLU services or where SLU no longer exists, it may be appropriate to consider a cost based price floor for WBA services in the context of next generation. We will keep this under review.

2.30 It is recommended that the retail margin squeeze test will largely be based on ComReg Decision No. D01/06, (which relates to the retail minus price control for legacy Bitstream²⁷), but will be amended, where relevant, to take account of retail cost differences specific to next generation WBA products and services. In addition to the retail margin squeeze test imposed in the WBA Market, we consider a number of wholesale margin squeeze tests, as follows:

- Wholesale margin squeeze test between End-to-end NG Bitstream and NGA Bitstream
- Wholesale margin squeeze test between NGA Bitstream and VUA
- Wholesale margin squeeze test between VUA and SLU.

2.31 The European Commission Recommendation promotes a reasonably efficient operator²⁸ (“REO”) margin squeeze test. While we are open to this approach, generally the necessary operator information is not readily available to implement such a test. Therefore, we have, in the past, tended to use the similarly efficient operator²⁹ (“SEO”) test as Eircom’s costs are reasonably well known and are supported by a set of audited separated accounts. The SEO and REO test are very similar in nature as they both take account of the fact that operators currently have a different basic cost function to Eircom and they do not yet enjoy the same economies of scale and scope as Eircom. Therefore, given the issue regarding the availability of robust other authorised operator (“OAO”) data, we believe that the SEO costs are more appropriate.

2.32 We consider that the retail margin squeeze test in the WBA market should be largely based on what it costs a similarly efficient entrant operator (the SEO test). We are consulting on the proposal that some retail costs e.g. advertising costs may be based on an equally efficient operator (“EEO”)³⁰ test in the context of NGA. This is further discussed in section 11.

²⁷ ComReg Document 06/01 entitled “Retail minus wholesale price control for Wholesale Broadband Access Market” dated 13 January 2006.

²⁸ REO test means using another operator’s costing information which takes into account that other operators currently have a different basic cost function to Eircom and they do not yet enjoy the same economies of scale and scope as Eircom.

²⁹ SEO test means a hypothetical operator which shares the same basic cost function as Eircom but does not yet enjoy the same economies of scale and scope as Eircom.

³⁰ EEO test means using Eircom’s costs and is based on Eircom’s scale of operations.

- 2.33 Eircom may also offer a pure resale wholesale broadband product in the form of End-to-end next generation Bitstream³¹. The wholesale margin squeeze test from this product, where offered, to next generation Bitstream and from next generation Bitstream to VUA should also be based on the SEO test for the reason of scale and scope of Eircom compared to other OAOs in the WBA Market.
- 2.34 For the wholesale margin squeeze test from VUA to SLU, we consider the EEO costs of Eircom are appropriate given that Eircom is currently the only operator providing the SLU service and in general the same costs would apply if another SLU operator were to provide those services. The main exception would be the cost of cabinets/DSLAMs³² and aggregation nodes, which are fixed costs, and would be more expensive for OAOs given the fact that they have lower economies of scale.
- 2.35 Where wholesale line rental (“WLR”) is bundled by Eircom with a next generation WBA service, we have considered the potential pricing implications which may result and have set out a number of options in Section 11 in this regard. These options aim to ensure that where Eircom’s downstream arm or an Access Seeker, is using the bundled WLR/next generation WBA wholesale input, it can effectively compete, in terms of price, in the NGA Footprint Areas.
- 2.36 We believe where WBA (next and current generation) is bundled with WLR, all lines must be priced in accordance with the relevant margin squeeze principles set out in any decision based on Consultation Document No 11/72³³ regarding Bundles in the context of current generation services, based on this consultation in the context of next generation services as well as ComReg Decision No. D07/61³⁴ (which includes the price control for WLR).

³¹ End-to-end Next Generation Bitstream is the end-to-end resale, Next Generation Bitstream product which allows the Access Seeker to purchase Next Generation WBA without the need to have its own infrastructure for example Backhaul and ISP services.

³² Digital Subscriber Line Access Multiplexers.

³³ Review of the appropriate price controls in the markets of Retail Fixed Narrowband Access, Wholesale Physical Network Infrastructure Access and Wholesale Broadband Access: Further specification of certain price control obligations in the markets of Retail Fixed Narrowband Access and Wholesale Physical Network Infrastructure Access.

³⁴ ComReg Decision No D07/61 entitled “Decision Notice and Decision Instrument - Designation of SMP and SMP Obligations, Market Analysis: Retail Fixed Narrowband Access Markets” dated 24 August, 2007 and ComReg Document No. 08/19 Information Notice: Single Billing Wholesale Line Rental - Directions to Eircom regarding retail minus %. Dated 22nd February 2008.

- 2.37 We note that any reduction to the WLR price can be made in accordance with ComReg Decision No. D07/61 (which sets a maximum price). We also discuss whether it would be appropriate to allow a discount to OAOs on a non-discriminatory basis where WLR is bundled with a broadband service (including Copper based services such as Bitstream and LLU Line Share). Under this scenario and in line with the notification requirements contained in ComReg Decision No D07/61 and this draft Decision Instrument, Eircom will not implement any discount in respect of a bundled WLR/next generation WBA wholesale input without prior notification to ComReg. Regardless of the option chosen we favour the maintenance of an appropriate economic space between LLU and services such as WLR and VUA and Bitstream (legacy or NGA).
- 2.38 In the case of migration prices, we propose a single universal charge based on the likely cost of migrations (including connections where appropriate) for all current generation and next generation products/services in the WBA and WPNIA markets divided by the likely volume of migrations during the same period, including all retail and wholesale access paths likely to be served by FTTC/FTTH.
- 2.39 It is recommended that Eircom should be obliged to comply with a number of notification and compliance obligations for the margin squeeze tests, including the obligations from ComReg Decision No. D01/06. In summary, the following pre-notification and compliance obligations will apply in the context of the retail and wholesale margin squeeze tests in the WBA market. The following are ComReg's proposals:-
- Eircom shall be required to pre-notify ComReg of all new retail prices and changes to existing retail prices for standalone retail broadband products and services where the wholesale input is a next generation WBA product and this shall be done 15 working days before the prices are expected to come into effect.
 - For next generation wholesale WBA products, Eircom will be obliged to pre-notify ComReg of all new wholesale prices and changes to existing next generation WBA prices and this should be done three months (two months to industry) before the wholesale prices come into effect.

- At the time of notification of retail prices for standalone retail broadband products and services in the context of NGA, Eircom will be required to provide a statement of compliance where the retail price for a new standalone retail broadband product (where the wholesale input is a next generation WBA product) or a change to the existing price(s) of a standalone retail broadband product is likely to have a material impact on the retail broadband market place. At the time of notification of wholesale prices, a statement of compliance will be required for the price of all new next generation WBA products and services and also for all price changes to existing next generation WBA products and services.
- Within one year from the effective date of the final Decision Instrument and each year thereafter, Eircom will be required to provide a statement of compliance to ComReg demonstrating its compliance with the retail and wholesale margin squeeze tests.

2.40 We now welcome the views of Industry and other interested stakeholders regarding the proposals set out in this consultation document. There are a wide range of complex issues and proposals set out in this consultation; with this in mind ComReg is available to meet³⁵ with industry throughout the consultation period. The consultation period will run from 04 April until 18 May 2012.

³⁵ Please contact Caoimhe Donnelly on Caoimhe.donnelly@comreg.ie where you consider a meeting is required.

Chapter 3

3 Regulatory Challenges

Overview

3.1 The main points in this section are discussed under the following headings:

- The regulatory challenge for NGA
- Guiding principles for regulation
- Potential competition problems
- Policy choices to address competition problems for NGA

3.1 The regulatory challenge for NGA

3.2 The planned investment by Eircom will mark a significant change in the delivery of fixed broadband services, presenting complex issues and challenges for regulation. The European Commission has given guidance, by way of the NGA Recommendation, to NRAs on the primary objectives for stimulating fibre investment and for the regulation of next generation networks.

3.3 ComReg's focus is to ensure regulatory certainty and a balanced approach to competing challenges for NGA investment. Our goal is to ensure clarity and timeliness for the regulatory regime, which should contribute to a dynamic investment environment.

3.4 The European Commission has identified its goal to encourage fibre investment and to facilitate alternative access to high speed networks. Underpinning these goals should be regulatory clarity and a consistent approach within the internal market. We recognise the importance of balancing these European objectives and are conscious of the delicacy of market developments and investment decisions. Stimulating investment and facilitating a return on investment plays an important role in the commercial outcome for all market operators.

Bearing this in mind, our regulatory decisions are adopted pursuant to our functions as set out in section 10 of the Communications Regulation Act and guided by our objectives which are set out in section 12 of the Communications Regulation Act together with Regulation 16 of the Framework Regulations which requires ComReg to apply objective, transparent, non-discriminatory and proportionate regulatory principles by “...safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure based competition...”³⁶.

3.1.1 Balancing investment incentives and competition

- 3.5 The NGA Recommendation has a clear objective to incentivise investment in wholesale physical infrastructure at the deepest level, from both incumbents and operators. ComReg has considered this goal with a view to finding a practical and feasible solution for the Irish market.
- 3.6 Eircom has an extensive, ubiquitous network yielding it the benefit of scale economies. Eircom has taken the strategic decision to invest in an NGA networks and the technical solution that it plans to deploy needs to be assessed in terms of its competitive impact and the long term implications for the market. The investment in NGA is market led and while we welcome infrastructure investment, we must ensure that Eircom's scale advantage does not lead to persistent economic bottlenecks on the fibre network, which would undermine the long term sustainability of in the market. Given the architectural solutions planned by Eircom and the continued dependency on its physical infrastructure, the appropriate measures must be considered with that in mind.
- 3.7 Crucial for ComReg is that any form of regulation facilitates investment and commercial strategies on the access network, in an equivalent and non-discriminatory manner. The mechanism for managing efficient investment is the wholesale access and pricing regime which can be used to ensure that incentives for anti-competitive behaviour do not emerge. It is paramount to reward risk where it is evident and to ensure price discrimination, at any level of the market, does not emerge. Though this potential for anti-competitive behaviour could dissipate, given the Eircom's planned Wholesale Business Unit reform³⁷. Additionally, there needs to be sufficient flexibility to ensure consistency over time and to facilitate a smooth migration to NGA.

³⁶ Regulation 16 2(c) of the Framework Regulations.

³⁷ See paper entitled “Discussion Document for Industry, Eircom Group, Proposed Programme of Voluntary Wholesale Reforms” dated 9 December 2011.

- 3.8 Having made significant investment in next generation services, wholesale demand for these services may need to be incentivised in the future, if demand is lagging. Though the copper network will be in place for many years the regulatory regime will play a role in managing a smooth migration from legacy broadband to next generation services. This objective is encompassed in our approach to the pricing of next generation access and should strike a balance on the investment returns for all players in the market.

3.1.2 Sustainable Competition

- 3.9 A complete range of wholesale access products will be necessary and should encourage access at the deepest level of the network. To complement to NGA access products there will be the maintenance of the current generation access products. Local loop unbundling (“LLU”) will continue to be an important driver of competition even as NGA networks are deployed. The strength of alternative operators in providing more basic broadband services is relevant in terms of delivering a full suite of services to end-users and to service the wholesale broadband access market throughout a transition to NGA.
- 3.10 Eircom has been found to be dominant in the WPNIA and WBA markets so it is possible to find the potential for anti-competitive behaviour. Incentives to foreclose the downstream markets could become manifest, with the SMP operator in a position to follow a strategy of constructive refusal to supply or excessive pricing, where regulation is not in place.
- 3.11 It is clear, however, that as established in the WPNIA Decision and WBA Decision, where SMP has been found, it is sufficient to have the ability to abuse a dominant position, in order to warrant *ex ante* intervention. In an NGA context, this could emerge where there is the possibility of innovation, from either current or potential competition, in the wholesale or retail markets. Our regulatory role is to ensure that the opportunity to discriminate does not emerge. This can be addressed through the access regime along with focused non-discrimination obligations and transparency, to ensure that exclusionary or exploitative practices do not prevail and that services are provided on an equivalent basis.

- 3.12 Recently the European Commission has issued a consultation on the pricing and costing principles of NGA networks and the terms and conditions applicable to the non-discrimination obligations that would ensure fair and equal access. The consultation alludes to the fact that there are persistent problems with the behaviour of dominant operators and that national regulatory authorities have not adequately addressed this problem using the obligation of non-discrimination. This consultation should provide further clarity on the meaning of the non-discrimination obligation set out in Article 10 of the Access Directive³⁸ (which is implemented in Ireland by Regulation 10 of the Access Regulations), which indicates that an SMP operator must apply access to OAOs on the basis of same conditions in the same circumstances, as it does to its downstream arm. In essence, access for alternative operators must be the same as what is provided to the downstream arm of a vertically integrated operator. The Body of European Regulators for Electronic Communications (“BEREC”) issued a consultation on 1 March 2012 on the high level principles on issues of non-discrimination³⁹. In particular it is consulting on the creation of a level playing field; the timely availability of wholesale access products (of a reasonable quality) and efficient switching provisions.
- 3.13 The Commission notes in its consultation, that the *ex ante* application of the non-discrimination obligation in Article 10 of the Access Directive seek to prevent discriminatory behaviour from the outset. Traditionally, NRAs have used the application of the non-discrimination obligation to tackle price and non-price discrimination by dominant operators. NRAs are now considering a more stringent application of non-discrimination as the effectiveness of the application of this remedy varies.

³⁸ Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and facilities (Access Directive), as amended by Directive 2009/140/EC of the European Parliament and of the Council of 25 November 2009.

³⁹ BEREC’s Review of the Common Positions on wholesale unbundled access, wholesale broadband access and wholesale leased lines - Stage 1 High Level Principles on issues of non-discrimination: 1 March 2012.

- 3.14 The Commission consultation points to lenient and ineffective implementation of the principle of non-discrimination in many Member States. In fact, the NGA Consultation seeks views as regards the necessity and appropriateness of imposing functional separation. We expect that it is likely that further clarification on the European Commission's policy is likely to emerge at some point in the near future but it is clear that discrimination by dominant players continues to occur in a number of Member States, even in an *ex ante* environment. ComReg will of course take utmost account of the final Recommendation on this matter when it is published by the European Commission. ComReg's approach to adopting the principle of "Equivalence of Inputs" and our proposal of a margin squeeze test across wholesale markets, attempts to prevent discriminatory and exclusionary behaviour emerging in an NGA environment. Likewise BEREC explores whether NRAs should justify their decision of whether or not to impose equivalence, and if imposed the exact form of it, in light of the competition problems identified.

3.1.3 Geographic dimension to NGA and the Digital Divide

- 3.15 One of the regulatory objectives for ComReg is to safeguard price, choice and quality for all consumers. Eircom's NGA roll out concentrated on what has been identified as commercially viable areas, the urban-rural divide may widen, challenging our overarching regulatory objectives. That said, the NGA rollout is at an initial investment stage, and evidence from other Member States is that next generation networks open new commercial possibilities, alliances and strategies. In which turn, it may extend the reach of an economically viable investment in NGA and new product and portfolio offerings, which benefit a greater number of end-users. ComReg will ensure that expansion of infrastructure investment is facilitated and incentivised, where possible.
- 3.16 We know that for the short term period, the roll out of next generation investment in the access network is likely to be concentrated on more densely populated areas and this structural change may lead to future changes in the dynamics of competition in particular geographic areas. The NGA Recommendation advises that NRAs should examine the emerging conditions of competition resulting from the deployment of NGAs. In the WPNIA and WBA markets, next generation roll out has yet to occur and through this period of flux, it is not yet fully clear how conditions of competition will alter and eventually stabilise on a geographic dimension. The dynamic of NGA investment will be monitored closely by ComReg, particularly with regard to its impact on the conditions of competition within wholesale markets.

- 3.17 The NGA Recommendation advises, however that NRAs should take the geographic dimension into account and modify remedies accordingly. This advice has been taken on board in a number of different ways in the context of the remedies proposed in this consultation. For example, we have proposed options which address the issue of compatibility between SLU and bandwidth enhancing technologies, which is an issue unique to the locations where fibre is present. Likewise, the pricing model proposed, though it is a national remedy, is sufficiently flexible to accommodate the differing costs in exchange areas which undergo the structural up-grade.

3.1.4 Consistency

- 3.18 The impact of migrating to an NGA network has implications for a number of defined wholesale and retail markets. Apart from the impact on the WPNIA and WBA markets, investment in NGA also impacts Market 6⁴⁰ the market for wholesale terminating segments of leased lines, Market 1⁴¹ on the retail narrowband access and calls and Market 2⁴² on wholesale call origination. The draft decisions proposed in this consultation are intricately linked to the obligations proposed in the consultation on Bundles in ComReg Document No. 11/72 as well as the decision on Key Performance Indicators, ComReg Decision No. 05/11, as well as the provision for pricing of WPNIA and WBA services⁴³. This underpins the importance and complexity of the decisions being proposed by ComReg and forms part of our assessment in terms of its regulatory impact and the need for us to ensure robust and consistent decision making.
- 3.19 At a European level, the European Commission has appealed for NRAs to fulfil their obligations to take account of the impact or implications for trade between Member States. This concern has been reiterated specifically in the NGA Recommendation which aims to address significant differences in approach by NRAs in applying remedies. With this in mind, we have taken care to ensure the application of the NGA Recommendation to national circumstances. This has been applied based on the competition problems which are specific to the markets and regulators the impact of proposed NGA investment by Eircom.

⁴⁰ ComReg Document No. 08/103, Decision No. 06/08, Market Analysis – Leased Line Market Review Response to Consultation on draft Decision Instrument Final Decision Notice and Decision Instrument.

⁴¹ ComReg Document No. 07/26, Market Analysis – Retail Fixed Narrowband Access Markets (Response to Consultation 06/39 and Consultation on Draft Decision).

⁴² ComReg Document No. 07/80, Decision No. 04/07, Market Analysis – Interconnection Market Review Wholesale Call Origination & Transit Services.

⁴³ ComReg Decision D1/06 and ComReg Decision D01/10.

- 3.20 Given that next generation services are at a nascent stage of development, we attempt to cater for a range of emerging market conditions. It is paramount that any regulatory regime will remain relevant now and in the future and our pricing regime is aimed at facilitating market entry and providing flexibility. An example of one issue which will require a flexible and adaptable approach is the management of the transitional period for running dual networks and existence of diverging incentives of operators. Moreover, we have presented a range of options for access to the sub-loop to cater for emerging technical solutions.
- 3.21 On a practical level, we now face choices in how we regulate next generation access in terms of access, pricing principles and ensuring fair conditions of access which should be aimed at addressing regulatory challenges.

3.1.5 Transitional period

- 3.22 The timing of next generation is paramount to Eircom but it is generally important to ensure that demand for wholesale products manifests over a reasonable period. The transition from copper to fibre within the NGA Footprint Area and how quickly this transition takes place, will have an important bearing on sustainability of this investment strategy. Notwithstanding this, the emergence of new technology developments is a market risk and a commercial reality faced by all operators with respect to their investments (both past and current) over time.
- 3.23 We consider that there will be a period of time, known throughout this Consultation as the “transitional period”, during which Eircom will roll out its NGA network to the areas identified by it as commercially viable, hence the NGA footprint areas, while maintaining the current legacy services over its copper network. ComReg wishes to provide certainty to all investors, including OAOs as well as Eircom during this period whether investing in copper or fibre.
- 3.24 The length of the transitional period is not certain at this point but from a regulatory point of view we consider that it could be at least three to five years, from the start of NGA rollout. It will depend on a number of factors including on one hand the success of the physical roll out; the cost of deployment; the costs of managing dual networks; the ability to migrate retail customers; the likely demand for services on the new fibre network and emerging corporate strategies. On the other hand, the period must be sufficiently long, not to curtail the ongoing unbundling of exchanges and to preserve regulatory certainty. That said policy changes over the transitional period needs to take account of the risks and investments being made by the SMP operator. This should become clearer in the next 12 to 24 months. Any changes to proposals in this paper would be subject to further consultation.

- 3.25 Any changes to proposals in this paper would be subject to further consultation.
- 3.26 During this time, LLU will remain the cornerstone for wholesale access in areas inside and outside the NGA footprint areas. OAOs will continue to rely on LLU for the immediate future in NGA areas during the transition period and outside NGA areas beyond this. In fact, ComReg understands that even within an NGA footprint area, not all customers may necessarily be able to acquire fibre based products and legacy equipment will be important in these circumstances. An example why this may occur is where copper loops are beyond a certain length and therefore not suitable for higher speeds.
- 3.27 In the short to medium term, it is likely that voice services continue to be offered over copper to customers availing of next generation services with the possibility of VoIP services being gradually made available.
- 3.28 Copper based wholesale products and services will be important where some customers will require a voice only service (either Public Switched Telephone Network (“PSTN”) or Wholesale Line Rental (“WLR”) and hence copper infrastructure will continue to be sufficient for these customers. Furthermore in the medium term, prior to the rollout of VoIP services, exchanged-launched voice over copper will still be the mechanism for delivering voice services albeit through the cabinet, for consumers of next generation services. A consideration for an operator taking up an NGA wholesale service will be the requirement to provide a voice service to end users. In Section 10 we discuss the possibilities of delivering voice in an NGA context and the technical possibilities for operators to use an NGA VoIP product. It remains to be seen whether a voice service can be adequately provided over a stand-alone wholesale access platform.
- 3.29 During this transitional phase, our regulatory objective is to facilitate a smooth and timely migration to NGA, whilst circumventing incentives to foreclose downstream markets or to discriminate. The measures proposed in this Second Consultation contain the flexibility to facilitate differing commercial incentives over the transition period, however our regulatory objectives will shift as NGA is rolled out to incentivise an end to the transitional period and migration to the fibre network.
- 3.30 During this period we will be mindful of any changes that the evolution towards NGA networks may have on the competitive landscape, including the impact on existing wholesale services the economic space between retail and regulated wholesale services.

- 3.31 ComReg considers when the new network is fully rolled out over the NGA footprint areas and all relevant services are supported over the new network, operators could be incentivised to migrate to the new network within a reasonable period of time.
- 3.32 As part of this consultation, we seek input on how the transitional period might evolve. In particular, we invite views on whether there will be a longer term demand for copper services in the NGA footprint areas and on whether current obligations should be retained for a longer period. We consider whether we should incentivise a migration from copper to fibre, as is being explored by the European Commission and if so, over what time period. If the transition period should be managed through pricing and product mechanisms, we would need to consider what criteria or triggers would be appropriate. We welcome industry input on this important issue.

3.1.6 Co-investment and risk sharing

- 3.33 ComReg considers that co-investment and risk sharing opportunities should be encouraged and explored by interested parties.
- 3.34 Co-investment opportunities may share the risk and cost faced by each respective party in the arrangement and such arrangements may incentivise investment in business ventures that might not otherwise occur (or on a smaller scale) due to the initial financial outlay or perceived financial risk.
- 3.35 The terms and conditions of co-investment and risk sharing agreements are an outcome of commercial negotiations between parties. In order to ensure regulatory consistency, such co-investment agreements, should be subject prior notification to ComReg to ensure that there is no discriminatory.
- 3.36 A risk sharing arrangement may involve an upfront commitment from (an) OAO(s) to purchase capacity. The upfront fixed cost in a risk sharing price structure will represent a commitment to Eircom over time to an agreed or set level of capacity i.e. customer access lines. It is important that Eircom complies with its non-discrimination obligations in this regard, especially where there is any risk sharing with its retail arm.
- 3.37 ComReg has identified four potential co-investment or risk sharing arrangements, in Section 11 and proposes the principles which we believe should apply to the regulation of each arrangement. The views of interested parties are sought.

3.2 Guiding principles for regulation

3.38 The regulatory framework for NGA is based on a set of principles, listed below, which helps to guide our decisions and regulatory outcomes. The Commission Staff working document⁴⁴ which accompanies the NGA Recommendation gives guidance on how regulatory policy can strike a balance between stimulating investment and protecting competition. The working document explains that the NGA Recommendation proposes several mechanisms for reconciling the co-existing objectives of investment and competition, including that:

- Access-based competition will continue to be facilitated after the transition to next generation access networks, by a proportionate application of the ladder of investment principle and the availability of updated wholesale access products.
- Risk incurred by regulated undertakings will be properly reflected in the regulated access price, giving an impetus to investment.
- Risk incurred by regulated undertakings could result in price flexibility in cases of FTTH, giving an impetus to investment.
- NRAs can lift regulatory obligations under certain circumstances of co-investment, giving an impetus to investment.
- NRAs can modulate remedies and access prices as a function of competitive conditions in certain geographic areas, which will allow the application of less intense remedies in more competitive areas and will give a push to investment in less densely populated areas (by admitting a risk premium for VDSL investments in such areas).

3.39 By taking utmost account of the NGA Recommendation and relevant legislative provisions, we have attempted to use the measures available to us to ensure the appropriate regulatory approach is adopted. ComReg is obliged, pursuant to Regulation 8(6) of the Access Regulations, to impose obligations based on the nature of the problem identified; to ensure that obligations are proportionate and justified in light of ComReg's objectives; and to first conduct a public consultation pursuant to Regulation 12 of the Framework Regulations and notify the measure to the European Commission, NRAs and BEREC, pursuant to Regulation 13 of the Framework Regulations.

⁴⁴ Commission Staff Working Document (accompanying document to the Recommendation on regulated access to Next Generation Access Networks (NGA) - SEC(2010) 1037page 37.

- 3.40 Regulation 12(1) and Regulation 12(4) of the Access Regulations set out statutory criteria which ComReg is obliged to take into account before imposing an access obligation. This includes *inter alia* examining the technical and economic viability; the feasibility of providing access; the initial outlay of investment by the operator and the need to safeguard competition. These considerations are taken into account when assessing any obligation to provide access and are discussed in further detail in the Regulatory Impact Assessment found in Section 13.
- 3.41 The level of access is important and the ladder of investment can be applied in an NGA context. Competition is fostered through access at the deepest layer of the network, enabling alternative operators to innovate and exert greater control over downstream network elements. In the Irish market, Eircom has chosen to implement a fibre to the cabinet solution and to offer enhanced Bitstream access services and VUA to wholesale customers. Access can only be mandated on the basis that it is necessary, justified and in a form which is proportionate and our regulatory impact assessment attempts to evaluate proportionate measures, particularly in the context of Regulation 12 (4) of the Access Regulations. The principle of proportionality is considered for access to the passive infrastructure, where we take the view that these remedies are currently in existence for the WPNIA market and are just an extension of what is already capable of being supplied.
- 3.42 In order to stimulate investment in fibre, an access price needs to take into account the right of the incumbent to earn a return on investment. This is made more complex in a market where demand is uncertain, consumers are not yet clearly willing to pay for an uplift in speeds and where there is mounting retail pressure from alternative suppliers of broadband services.
- 3.43 The challenge is not only to stimulate investment in fibre but also to navigate the migration from copper to fibre by access seekers, in a fair and equitable way, for both sides of the market. For alternative operators that have invested in copper networks through LLU, the challenge is to ensure that assets are not stranded and that investment can be recovered over a reasonable period.

ComReg's preliminary conclusions:

- 3.44 These are a complex set of regulatory challenges and the roll out of NGA investment has yet to occur. We have undertaken a detailed review of the appropriate regulatory decisions in an NGA environment and our preliminary views on the relevant obligations are set out in this Consultation and Draft Decision Instruments.

- Q. 1 What period is appropriate for the transitional period and why? What issues do you think will occur over this period? Do you think that it will be important to maintain copper services in NGA footprint areas during this time? Please provide reasons for your response.
- Q. 2 Do you believe that it is appropriate for ComReg to manage or incentivise a migration from copper to fibre over the transitional period? If so on what basis should ComReg assess the appropriate timing or benchmark for retirement of the copper network? What criteria or trigger should be used? Please provide reasons for your response.

3.3 Potential competition problems

- 3.45 The Market Reviews for both WPNIA and WBA established that Eircom has SMP in these markets and identified potential competition problems arising from Eircom's market power in particular arising from the copper network. An assessment of potential issues helps to focus on what the correct form of regulation should be in an NGA environment⁴⁵. The finding of SMP indicates the potential for competition problems to arise, and this is sufficient to justify the imposition of proportionate regulatory obligations. Here we examine the specific independent behaviour which could arise with the deployment of a new network and has the potential to hinder the development of competition.
- 3.46 It should be remembered that in Regulation 25 (1) the Framework Regulations⁴⁶ states that an entity with significant market power is:
- “... an undertaking designated as such by the Regulator under Regulation 27(4) where the Regulator is satisfied that, in relation to any relevant market, such undertaking (whether individually or jointly with others) enjoys a position which is equivalent to dominance of that market, that is to say a position of economic strength affording it the power to behave to an appreciable extent, independently of competitors, customers and, ultimately, consumers”.*
- 3.47 Pursuant to Regulation 27(4) of the Framework Regulations, a finding of SMP requires intervention through *ex ante* regulation and the imposition of the regulatory obligations set out in the Access Regulations. The full suite of regulatory obligations was imposed in the WPNIA and WBA Decisions on Eircom in respect of current generation access. While the full suite of regulatory obligations were imposed also in respect of next generation WPNIA and WBA, the NGA obligations were, in general, imposed at a high level and this consultation is seeking to further specify those obligations.

⁴⁵ It is not necessary to point to examples of actual anti-competitive activity within the meaning of Article 102 of the TFEU or Section 5 of the Competition Act, 2002 that have occurred or are occurring.

⁴⁶ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), (the Framework Regulations).

- 3.48 There is the potential and incentive for a vertically integrated dominant operator, competing in both upstream and downstream markets, to engage in actions which could inhibit the development of competition in the WPNIA market⁴⁷ and the WBA markets⁴⁸. The purpose of *ex ante* regulation is to prevent an operator with SMP from behaving in a manner which would inhibit the development of competition.
- 3.49 We examine the particular competition problems which may emerge in an NGA environment. ComReg has been assisted by Oxera to examine the regulatory options for pricing principles and methodologies for next generation access products (see Annex 8). Their analysis highlights the potential competition problems which may occur in an NGA context.
- 3.50 These potential problems arise in this context from Eircom's dominance and control of the bottleneck facility of next generation access for WPNIA and WBA. This could potentially lead to anti-competitive behaviour such as:
- Incentives and ability to foreclose
 - Price discrimination
 - Non-price discrimination
- 3.51 These are discussed below.

3.3.1 Incentives and ability to foreclose

- 3.52 In a NGA environment as discussed in Oxera's analysis, the incumbent or SMP operator could have the incentive and ability to foreclose markets where it weighs up the benefit of excluding rivals from the downstream market. The incumbent could pursue a decision to strategically foreclose, where there is an anticipated threat from a market entrant. In its assessment of the 'vertical arithmetic' approach the dominant operator sees long term benefits from foreclosing the market and seeks to exclude any rival firm that has the potential to innovate and grow its position in the downstream market. The implications of which are more pertinent at the emergent stage of market development, when first mover advantage is crucial. The perceived threat from an entrant's strength in the downstream market, could enable it to gain position in the upstream wholesale market, climbing the ladder of investment and undermining the position of the incumbent. This potential threat could incentivise the incumbent to foreclose the downstream market in order to preserve its position.

⁴⁷ Paragraph 5.99 of ComReg Document No. 08/104.

⁴⁸ Section 6 of ComReg Document No. 11/49.

- 3.53 In a NGA context the market for services will emerge in both the retail and wholesale markets; in the latter this will happen where operators align together to offer bundled retail packages. It would be particularly important for the incumbent to win wholesale customers at the outset, as switching costs in the wholesale market are high. If the entrant has an alternative option for provision of access, the incumbent would sense the threat and reinforce the strategic choice to foreclose. The ability to exclude competitors of such a dynamic stage of market development could have lasting implications for competitors and the market structure, by preserving the longer term dominant position of the incumbent.
- 3.54 Eircom claims in its submission to the First NGA Consultation that competition in the retail market from the cable operator means that it is rational for it to provide wholesale access and hence there is no need for ComReg to impose an obligation to provide access particularly in a NGA area. The experience of market interaction and development, in particular with LLU, has shown that even in the presence of regulation, access has been delayed and hindered. Given the importance of first mover advantage at this stage of NGA development, the potential to foreclose could emerge.
- 3.55 As mentioned earlier, when dominance has been found, it is only necessary to show an ability to act independently and hence identify potential competition issues which may arise. However, as noted by some respondents, exclusionary practices have been evident over the historical process of delivering and implementing fit for purpose WPNIA products, in particular. The regulatory interventions and management of access products would suggest that access to wholesale physical infrastructure, even in the largest exchanges which are generally in the most densely populated areas, would not automatically be granted to access seekers without *ex ante* intervention. In addition, evidence from one respondent claims that Eircom's behaviour in the access markets has been anti-competitive, citing the length of time taken for Eircom to provide seamless migrations to LLU.
- 3.56 This confirms the findings of the WPNIA and WBA Market Reviews, that the potential to foreclose exists and should be addressed with obligations that provide access and prevent any discriminatory behaviour. Access remedies will in fact be necessary as it could be strongly argued that the use of vectoring by Eircom will extend Eircom's control of the network and dominance over the copper sub-loop. This is because vectoring would cause problems for co-location of the copper sub-loop. Given that the market will be in a state of flux and Eircom will have the incentive to gain first mover advantage, it is important that operators have a level playing field.

3.3.2 Price discrimination

- 3.57 Price discrimination can be used in an anti-competitive way as it could be exploitative to result in exploitative or exclusionary practices to the detriment of rival firms. Vertical leverage could be pursued whereby the upstream and downstream services are used in such a way as to obstruct effective downstream competition due to an insufficient margin between the prices for wholesale inputs and retail prices. An incumbent could execute foreclosure through price discrimination and margin squeeze. The consequences could range from actual market exit by competitors or the hampering of both service and infrastructure based competition.
- 3.58 Given Eircom's control of the access elements and an active presence in the retail market, including offering a broad range of retail services, the incentive to squeeze at the wholesale level is potentially present. It could be considered that in order to make a return on its NGA investment, it will price excessively in the market where its power is strongest, the wholesale markets. The ability to do this will also be strongest in the wholesale access markets, whereas its downstream arm faces more competitive pressure from the cable operator. Moreover, access seekers would not have an alternative option for access to the NGA network and so would be forced to take access on the terms and conditions of the SMP operator.

3.3.3 Non-price discrimination

3.59 Even when access is ensured through regulation, elements of discrimination may emerge, particularly through asymmetry of information and behaviours which exclude and exploit wholesale customers, preventing a level playing field. Evidence of such behaviour in the communications markets of other Member States has directed NRAs to address discriminatory behaviour by using its regulatory powers stemming from the non-discrimination obligation from the Access Directive. The European Commission has issued a questionnaire for the public consultation on the use of the non-discrimination obligation to attempt to ensure consistency across Member States (the “Non-Discrimination Consultation”)⁴⁹ and BEREC has commenced a consultation on high level principles on issues of non-discrimination⁵⁰. What is clear is that there is the potential and opportunity for discriminatory behaviour to take place if it is not addressed through comprehensive application of regulatory obligations.

3.60 As explained by the European Commission:

“when addressing discriminatory behaviour by dominant operators, national regulators have initially, focussed their main attention on tackling price discrimination (e.g. possible margin squeezes). However, cases of non-price discriminatory behaviour (e.g. quality discrimination, access to information, delaying tactics, undue requirements, strategic design of product characteristics etc.) are often more numerous and can be equally, if not even more severe”⁵¹.

⁴⁹ Questionnaire for the public consultation on the consultation on the application of a non-discrimination obligation under Article 10 of the Access Directive (including Functional Separation under 13A).

⁵⁰ BEREC’s Review of the Common Positions on wholesale unbundled access, wholesale broadband access and wholesale leased lines - Stage 1 High Level Principles on issues of non-discrimination: 1 March 2012.

⁵¹ Questionnaire for the public consultation on the consultation on the application of a non-discrimination obligation under Article 10 of the Access Directive (including Functional Separation under 13A).

- 3.61 In an NGA context, Eircom will still control certain information and processes and access to technical interfaces, which if not provided to Access Seekers, could be used for the benefit of its retail arm. In the past there have been issues around non-pricing discrimination which had the effect of marginalising competition. For example, as noted in the Section 7 of the ComReg Document No. 10/81(Consultation and Draft Decision - Market Review: Wholesale Broadband Access (Market 5)); the ability of the vertically integrated SMP operator to foreclose WBA-based competition in the retail market by creating or exploiting information asymmetries; in particular through control of access of internal information systems. Additionally, wholesale customers require accurate and timely information for order processing, service delivery and fault repair⁵², which has been frustrated in the past.
- 3.62 It is not considered that these incentives will be mitigated in an NGA context. As mentioned above, the choice of network architecture for FTTC means that the primary form of access dictates that wholesale operators will not have the option to access the deepest layer of the network in the majority of NGA enabled areas and hence will rely on the provision of fair and equal access from Eircom at the service layer. The importance of the non-discrimination obligation is further discussed in Section 8.

3.4 Policy choices to address competition problems for NGA

- 3.63 The Access obligation pursuant to Regulation 12 of the Access Regulations provides for competitive entry through infrastructure and service based competition. A dominant operator may benefit from a lasting “first mover” advantage, based on its control of network infrastructures. This can lead to high barriers for potential entrants (unable to duplicate these infrastructures) and resulting in a low competitive pressure in the absence of regulation.
- 3.64 The rationale for the ladder of investment is to provide a path for infrastructure-based competition for market entrants. While service based competition facilitates initial market entry, it maintains a dependency on the technology choices of the incumbent⁵³. Whereas, infrastructure based competition presents the advantage of incremental curtailment of the control of a monopolist, which can lead to the progressive de-regulation of a market^{54/55}.

⁵² See ComReg, “Decision to find that Eircom is not in compliance with the non-discrimination obligation in its use of ‘Sync Checker’”, Document 08/95, 4 December 2008.

⁵³ “Service-based competition is inherently limited because competitors are restricted by the price, service and technology choices of the infrastructure owner. At best, over the long run, it offers a stepping-stone to competitors on their way to building access networks of their own. Facilities-based competitors do not suffer from these same infirmities, and because of the durability of their

- 3.65 Application of the theory of the ladder of investment provides for progressive entry by an alternative operator at each rung of the ladder, from service based access to infrastructure access with the ultimate goal of self provision. The OECD sums up the reasons for the consensus reached on the benefits of the infrastructure-based competition compared to the service-based competition:

“There is a consensus that in the longer term facility based competition brings more benefits to consumers since it enables competition in the wholesale market which, in return, increases the rate of reduction in retail prices and diffuses new innovative services through competition between infrastructure providers”⁵⁶.

- 3.66 Hence, if access is forced through *ex ante* regulation, service based competitors will continue to be dependent on the SMP operator until such time as they move up the ladder of investment. If the SMP operator is vertically integrated, operational at each level of the market upstream and downstream, the potential to discriminate is inherent. Within the WBA market there are different layers of service, which form a chain of substitution; in an NGA environment, the introduction of VUA creates another level of access within the WBA market. The ability to act independently could occur between markets and on any product within the same market.

- 3.67 Our analysis, based on the experience to date of frustrated entry and operation in the WPNIA market means that in an NGA context, strong access provisions are required. Access in each wholesale market is required, based on the competition assessment. Additionally, supporting remedies to prevent pricing and non-pricing discrimination are necessary, whereby a non-discrimination obligation should ensure that access is provided to a standard which provides an equivalent level of service as is provided to Eircom’s downstream arm, save justifiable circumstances.

investments, entry of this kind is more likely to have a sustained impact.” Glenn A Woroch (University of California, Berkeley), Local network competition, Handbook of Telecommunications Economics, 2002.

⁵⁴ “First, the infrastructure-based competition can enable to regulate the incumbent market power in a more efficient way than a regulatory authority. [...] An infrastructure-based competition enables progressively to limit regulatory controls and can lead in the end to a de-regulated sector. [...] In addition, the development of new services often requires that the “innovator” controls the infrastructure. For example, telephony services, broadband services, are implemented at local infrastructures level”. Marc Bourreau et Pinar Doğan, Concurrence par les services ou concurrence par les infrastructures dans les télécommunications ?, Economie Publique, n°12, 2003/1 (<http://economiepublique.revues.org/pdf/338>).

⁵⁵ “An often repeated mantra among those who are concerned with telecom regulation is that *ex ante* regulation should give way to *ex post* regulation. (...) This ‘sunset vision’ of telecom regulation is based, to a large extent, on the view that competition in infrastructure is both possible and preferable to access-based competition.” Mats A. Bergman, Competition in services or infrastructure-based competition? A review of the regulatory schemes, Uppsala University and Södertöm University College, 2008.

⁵⁶ OECD, Interconnection and local competition, DSTI/ICCP/TISP(2000)3/FINAL, 2001 (<http://www.oecd.org/dataoecd/43/56/1894706.pdf>)

- 3.68 Problems have been evident in the supply of LLU over recent years and the development of the LLU product set has been marked by significant delays in getting minor improvements to the product set. OAOs complained about inefficiencies in standard processes which would allow them to move up the value chain, such as bulk migrations processes. ComReg's experience has been that considerable levels of intervention and oversight have been required to assist the resolution of these difficulties. The length of time and effort required to resolve process problems and operational issues have impacted on the ability of OAOs to compete.
- 3.69 The European Commission has initiated a consultation on the application, monitoring and enforcement of non-discrimination obligations⁵⁷, the Non-Discrimination Consultation. It draws attention to the fact that national regulators have recognised the importance non-discrimination through the Common Position by the European Regulators Group (ERG) on *ex ante* remedies⁵⁸. Across Europe dominant operators continue to discriminate even in the presence of regulation. NRAs have focused on tackling price discrimination however the impact of non-price discrimination can be just as harmful.
- 3.70 For this reason, the European Commission is considering clarifying the standard of this measure. The experience in the Irish market points to the ability of Eircom to act in a discriminatory way in its supply of wholesale products and services.
- 3.71 In terms of the policy choices to address the potential for non-price discrimination, we take the view that a higher standard of non-discrimination is both merited and possible for NGA products and services. This is further explained in Section 8. Furthermore, the performance of delivery of access should be monitored by a clear process of notification to ComReg and to industry, for product development and the standards of equivalence. These should be supported by key performance indicators (KPIs), service level agreements (SLAs) and key performance metrics, amongst others.

⁵⁷ Questionnaire for the public consultation on the consultation on the application of a non-discrimination obligation under Article 10 of the Access Directive (including Functional Separation under 13A).

⁵⁸ Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework; ERG (06) 33 and Report on ERG Best Practices on regulatory regimes in wholesale unbundled access and Bitstream access; ERG (07) 53. Please note that BEREC is currently working on up-dating these Common Positions. No date for completion of this work has yet been announced.⁴ See. For example the cases notified under the following numbers: IE/2011/1185.

3.72 In terms of addressing price discrimination, the application of a margin squeeze test is necessary to preserve investment incentives for competition. The investment ladder framework only makes sense if the new entrants have sufficient economic space permitting it to access the higher rungs of the ladder.

3.73 Mindful of this threat to the development of competition in Regulation 13 (1) the Access Regulations stipulates that:

“The Regulator 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”.

3.74 Regulation 13 (3) of the Access Regulations further provides that specific pricing mechanisms should be used to prevent a price squeeze and ComReg has followed the legislation in order to ensure sustainable competition which has at least the opportunity to progress towards infrastructure investment. Regulation 13(3) of the Access Regulations stipulates that:

“The Regulator shall ensure that any cost recovery mechanism or pricing methodology that it imposes under th[e] 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.”

3.75 Our proposal for the pricing regime specifically aims to prevent a margin squeeze given the apparent possibility of distortion and exclusion of competition. The goals of the margin squeeze test are as follows:

- To facilitate the entry of operators with their own network by ensuring that they will not be squeezed by competitors with no network.
- To verify that the price of a wholesale upstream product bought by operator with its own network will not be squeezed by the SMP operator itself, which means that the test should also apply between upstream wholesale products and to any self-supply resale products of the SMP operator.

ComReg's Preliminary Conclusions

- 3.76 Having examined the potential for competition issues to arise in an NGA context and in particular, considering the behaviour of Eircom towards its wholesale customers for current generation access services, we have taken a view on the issues that may arise in the context of NGA and the proposed remedies that should address the competition problems identified. We consider that the obligations proposed are proportionate and justified in light of ComReg's objectives as set out in Section 12 of the Communications Regulation Act and Regulation 16 of the Framework Regulations. There is a justified need to ensure that wholesale access is provided, such that foreclosure does not arise in and a suite of remedies will be required to ensure that discrimination, whether pricing or non-pricing, does not occur. Transparency obligations will also be required in this regard.
- 3.77 The cornerstone of ComReg's approach is to incentivise operators move up the ladder of investment, which is considered instrumental to driving sustainable competition. Our analysis in terms of appropriate access to NGA wholesale products and services is aligned with ensuring that competition problems do not develop. Once ComReg has received the responses to this consultation, it will consider all responses and then notify the draft measure to the European Commission, the other NRAs and BEREC pursuant to Regulation 13 of the Framework Regulations.

Chapter 4

4 Background: The transition to NGA

The deployment of Eircom's Next Generation Access network

- 4.1 While Eircom's current generation network has been upgraded over the last number of years to support broadband rollout, the architecture and the technology in the network has not fundamentally changed. In particular, the predominant role of copper in the access network has been maintained. Currently, there is a choice of broadband and bundled services available to consumers at different speeds and price points and available from a number of different operators using Eircom's wholesale inputs.
- 4.2 There is a range of current generation wholesale access products available which other alternative operators can use as regulated inputs into their downstream offerings. These wholesale products are supplied over Eircom's copper access network. While the increasing demand for higher speed services is driving the development of technologies and deployment strategies which can optimise the capabilities of the copper network elements, it is clear that at some stage the limits of current generation service offerings will be reached.
- 4.3 Consumer demand for bandwidth for video, cloud services, downloading, and the availability of other bandwidth hungry applications is putting pressure on networks and has led to some operators replacing copper with fibre in the access network. Fibre in the access network combined with a next generation network ("NGN") core offers operators the potential to consider enhancements to their product portfolio. The transition to NGA is a significant step toward achieving the potential for significantly greater access speeds and full IP enablement of applications, on a quality of service ("QoS") all IP network.
- 4.4 Operators worldwide have considered the option of full or partial deployment of fibre in order to efficiently transition to next generation capability. While deploying fibre connectivity all the way to the end-user premises would seem optimal, the complications and cost associated with a complete replacement of the copper access path have led many incumbents to implement a partial fibre rollout as an interim step. This strategy has been informed by the uncertainty that exists around the extent of the demand for high speed services and the consumer's willingness, or otherwise, to pay for higher speeds.

- 4.5 On 28th July 2011 Eircom announced Phase 1 of a national rollout of NGA network infrastructure with plans to pass 100,000 homes by summer 2012, with further plans to pass approximately 1 million homes over the following years⁵⁹. On 20 September 2011, Eircom presented to Industry further details on its plan to deploy NGA⁶⁰. In Phase 1, Eircom has committed to rolling out its NGA network to areas with (i) highest penetration of broadband as a percentage of PSTN lines; (ii) highest number of Broadband lines; and (iii) a high degree of competition from other platforms. Eircom's roll out plans will concentrate on specific areas which it considers to be commercially attractive. It has recently announced Phase 2 of its NGA roll out, which will upgrade a further 12 exchanges across Ireland, passing an additional 125,000 premises.
- 4.6 In week of 26 September 2011, Eircom initiated an NGA Pilot which was limited to specific exchange areas and featured the deployment of a mix of both FTTH and FTTC⁶¹. The NGA Pilot products are described in Annex 6. The FTTC proposal consisted of the installation of a fibre path from the exchange to the nominated cabinets and the installation of VDSL2⁶² technology at the cabinet. This allows high speed services to be launched from the cabinet i.e. closer to the end-user via the copper sub-loop. In addition to a FTTH unbundled product, Eircom proposed a range of active products; high speed bitstream services and a virtual unbundling Layer 2 product, which would be available over both FTTC and FTTH network architectures

⁵⁹ http://pressroom.eircom.net/press_releases/article/eircom_Announces_Over_100M_Investment_in_Phase_1_of_Planned_Fibre_Rollout/

⁶⁰ See <http://www.nextgenerationnetwork.ie/ngn-access>.

⁶¹ The pilot involves the build out of fibre optic cables using Fibre to the Home and Fibre to the cabinet to 16,000 homes and business served by Sandyford, Wexford town, Dundrum and Priory park exchanges for further details see. <http://www.fibrepilot.ie/index>.

⁶² 2nd Generation Very High Speed Digital Subscriber Line,

Figure 1: Current Generation Access and Next Generation Access

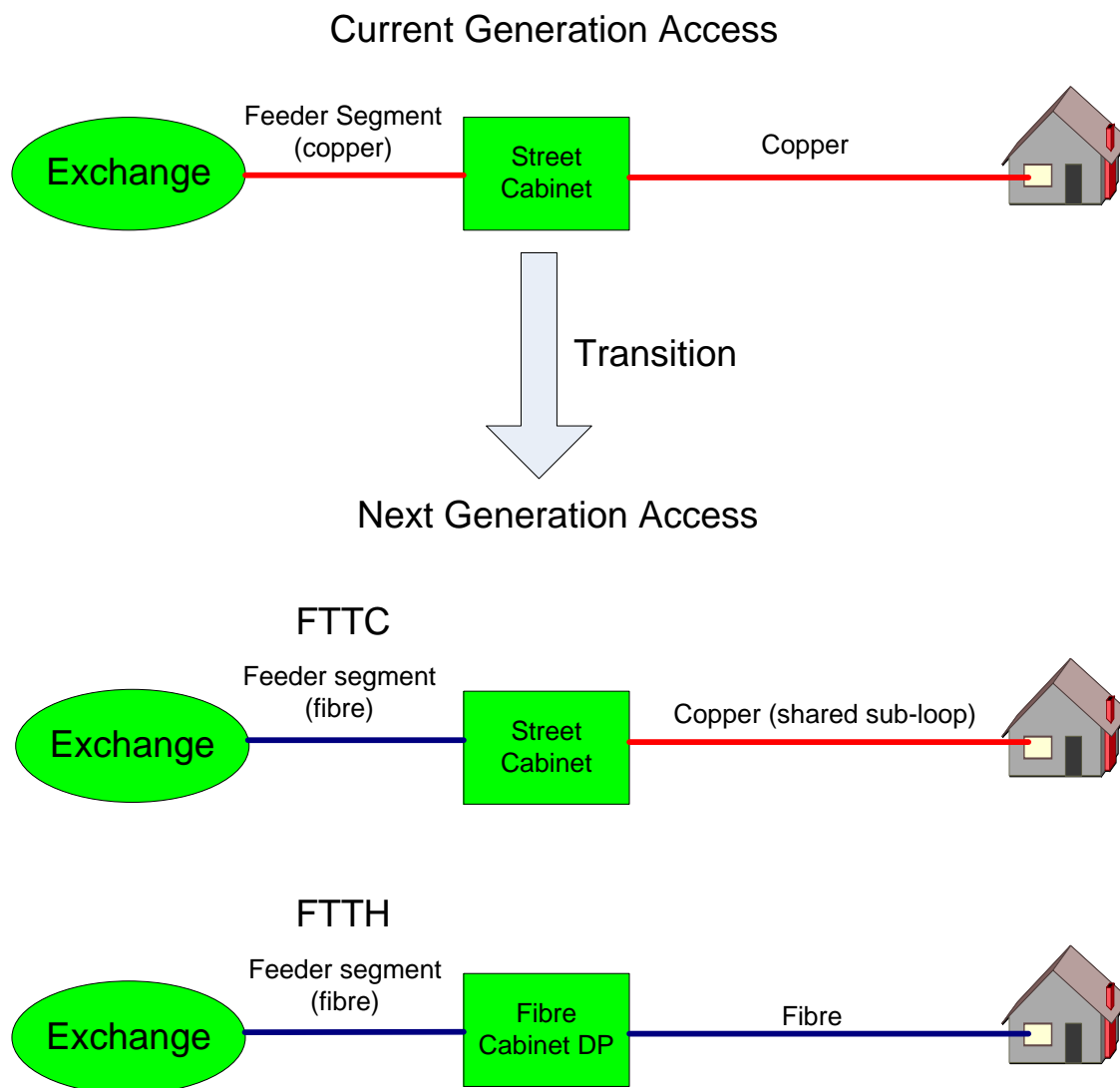


Figure 1: A generalised schematic showing the changes that result from the transition from a Current Generation Access architecture to two variants of Next Generation Access architecture. Eircom’s NGA deployment consists of FTTC primarily with some FTTH. Eircom’s actual FTTC architecture is shown in Figure 2 on page 49.

4.7 In this consultation we will make the distinction between NGA Footprint Areas and Non-NGA Footprint Areas. We consider that NGA Footprint Areas are exchange areas where NGA is to be deployed by Eircom and where fibre might be laid in the access network either through FTTC or FTTH (this is likely to be in exchanges with greater than 1,800 lines). Non-NGA Footprint Areas can be considered to be exchange areas where NGA is less likely to be deployed.

- 4.8 The Phase 1 will mainly consist of the rollout of FTTC, with the possibility of some FTTH in a minority of cases where premises are served directly from the exchange i.e. with no intermediate street cabinet. In FTTC the fibre path to the cabinet allows active equipment to be installed at the cabinet. The combination of the shorter copper sub-loop length and the presence of VDSL equipment in the cabinet allows for considerably greater speeds than what is currently possible using exchange-launched ADSL services over a longer, exclusively copper, path.
- 4.9 For its NGA rollout Eircom has stated that it is their intention to deploy bandwidth enhancing technology at the street cabinet. This technology, which works in conjunction with VDSL2, allows the development of retail services which provide higher bandwidth than that which can be offered by VDSL2 alone. The bandwidth enhancing technology which Eircom has decided to deploy is a technology called vectoring, which is an emerging technology that relies on the elimination of crosstalk between all pairs in a copper binder. This increases potential bandwidth speeds, however it is not commercially available at this point.
- 4.10 Eircom has stated that the copper access path from the exchange to the end user will be maintained in the medium term. This will allow exchange-launched voice services to be maintained over the copper access path in conjunction with the availability of cabinet-launched NGA services; both being made available through the cabinet. Therefore all services, including voice services, will be delivered to the end-user over the same copper sub-loop for FTTC based NGA and in parallel for FTTH NGA. Both current generation and potential next generation remedies, relating to a number of markets, play an important role.

ComReg's Preliminary Conclusions

- 4.11 The move to NGA marks a strategic inflection point in the development of communications services in Ireland. This development offers the potential for increased competition in the provision of high speed services to end-users. Its introduction raises a range of issues which demand a regulatory response which strikes the correct balance between the need to maintain competition and encourage appropriate network investment in order to ensure that end users can reliably avail of competitive high speed services.

Chapter 5

5 Obligation to provide access in the WPNIA market

Overview

- 5.1 In this section we consider the existing obligations as contained in the WPNIA Decision (ComReg Decision No. D05/10) and the application of the NGA Recommendation in Market 4. We take into account the elements of the network structure which fall within this market, Eircom's proposal for the rollout of next generation network technology and the demand for wholesale inputs from OAOs.
- 5.2 The main points in this section are discussed under the following headings:
- Remedies mandated in the context of WPNIA
 - Eircom's Next Generation Access Network
 - Eircom's proposed network structure and the NGA product set for WPNIA
 - Civil engineering infrastructure
 - Unbundled access to the fibre loop and access to the terminating segment for FTTH
 - Next Generation Access in the context of FTTN
 - Backhaul in the context of WPNIA
 - Cabinet and exchange co-location

5.1 Remedies mandated in the context of WPNIA

- 5.3 In Part III of the Decision Instrument attached to the WPNIA Decision, ComReg set out the set of obligations which would apply with respect to the provision of Next Generation WPNIA products and services.
- 5.4 These obligations are as follows:
- Access obligations
 - Transparency obligations
 - Non-discrimination obligations
 - Price control and cost accounting obligations
 - Accounting separation obligations
- 5.5 This consultation intends to further specify the remedies that should apply to NGA products and services in the WPNIA market.

5.2 Eircom's Next Generation Access Network

- 5.6 In an NGA environment, next generation WPNIA can be taken to mean access provided over next generation access network infrastructure and its associated facilities (including self-supply by Eircom for the purpose of serving its downstream markets). In essence an NGA environment is one where the access path is a combination of fibre optic and copper cable or where the access path is made up entirely of fibre.
- 5.7 On foot of the WPNIA Decision, Eircom has been found to have SMP in the WPNIA market (which contains both current and next generation WPNIA services and facilities). Eircom has an obligation to provide access to any WPNIA products and services which it self-supplies. Therefore, access to fibre network infrastructure must be provided to third parties where such services are offered internally.
- 5.8 The associated facilities that are required to deliver WPNIA continue to be relevant in an NGA context. It should also be noted that while not considered NGA *per se*, legacy copper will remain between the exchange and the cabinet in conjunction with fibre for a transition period. Therefore there will be two parallel feeder segments made up of fibre and copper, both of which can support services, as demonstrated in Figure 2 below.

5.9 During the transitional period, the services on these two distinct paths will be combined in the cabinet and presented to the end-user on the same copper sub-loop. This gives rise to the possible requirement for shared access to the copper sub-loop, where two operators simultaneously offer services to a single end-user, one utilising the copper feeder segment and the other its fibre counterpart.

5.3 Eircom's proposed network structure and the NGA product set for the WPNIA

5.10 The network topology planned for Eircom’s NGA deployment is focused on FTTC predominately and to a lesser extent on point-to-multipoint FTTH based on gigabit passive optical network (“GPON”) technology which is explained in Annex 7.

5.11 With FTTC, Eircom will deploy fibre from its exchanges to a second street cabinet located adjacent to the existing cabinet (Ref Figure 2). The new street cabinets will house the copper-oriented digital subscriber line (“DSL”) equipment, similar to the active equipment currently deployed in exchanges. Eircom is deploying an enhanced specification of DSL, VDSL2, which seeks to exploit shorter local-loop distances to increase broadband speeds above current generation technology.

Figure 2: Eircom FTTC NGA Implementation

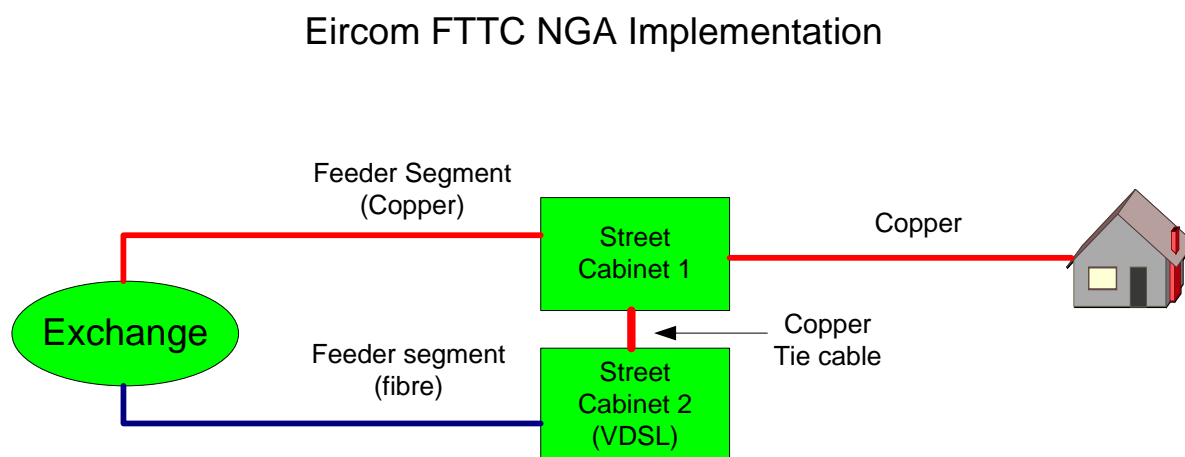


Figure 2: Schematic of Eircom’s FTTC deployment showing the copper remaining in the access network. In Eircom’s planned deployment a second street cabinet housing VDSL2 active equipment will be installed and both cabinets interconnected with a tie cable. All services will then be made available to the end-user over a common copper sub-loop.

- 5.12 Eircom proposes two possible bandwidth configurations for the FTTC deployment, one aimed at high-speed users (up to 50 mb/s downstream, 20 mb/s upstream) and another at real-time time-sensitive applications such as IPTV (up to 35 mb/s downstream, 16 mb/s upstream). The FTTH deployment will support 150 mb/s downstream and 30 mb/s upstream.
- 5.13 The wholesale products offered by Eircom as part of its rollout proposal are limited to “active” products which it has named “NGA Bitstream Plus” and “VUA”. These rollout products are discussed in Section 6 of this Consultation (which addresses the WBA access products) and described in Annex 5.
- 5.14 Eircom offered “NGA unbundled” products (FTTH unbundling and FTTC –sub-loop unbundling) as part of its NGA Pilot, which preceded its announcement of NGA rollout on 20th September 2011. The NGA Pilot products are described in Annex 6. Eircom has not offered a fibre unbundling product as part of its deployment proposition.

5.4 Civil engineering infrastructure

- 5.15 The NGA Recommendation has specified that the development of very high-speed broadband services is essential for economic growth, across Europe. Furthermore, promoting regulatory consistency across Europe is essential to creating a single market for electronic services. The NGA Recommendation stipulates that access to civil engineering infrastructure is essential to encourage efficient investment and infrastructure competition. Paragraph 11 of the NGA Recommendation, has defined civil engineering infrastructure as:

“.. physical local loop facilities deployed by an electronic communications operator to host local loop cables such as copper wires, optical fibre and co-axial cables. It typically refers, but is not limited to, subterranean or above-ground assets such as sub-ducts, ducts, manholes and poles.”

- 5.16 The Commission’s view is that access to civil engineering infrastructure is crucial for the deployment of parallel fibre networks with the aim of incentivising efficient entry at the lowest rung of the ladder of investment. Access to civil engineering infrastructure has been recognised by the Commission and respondents to the First NGA Consultation as being necessary to promote sustainable competition, and respondents have expressed their potential interest in obtaining such access.

- 5.17 Duct access is mandated through the WPNIA Decision with regard to current generation WPNIA, for the purpose of ensuring provision is made for access to this aspect of the physical network infrastructure. However, we consider that there is a need to further specify the obligations for all aspects of civil engineering infrastructure in the context of deployment of NGA.
- 5.18 In the Irish market, we consider that access to civil engineering infrastructure includes, but is not limited to, access to ducts and poles. Of the two examples given, access to ducts raises particular issues as ducts are buried underground and have finite capacity. Therefore, this section, at times, will specifically refer to duct and duct capacity, however the underlying principles apply to all civil engineering infrastructure.
- 5.19 In its submission to ComReg's First NGA Consultation, Vodafone identified the need to have access to ducts for the purpose of implementing mobile backhaul to provide advanced mobile communications such as next generation mobile broadband. In addition, Vodafone added that dark fibre may be necessary to ensure efficient competitive access. Eircom has stated in its submission to the First NGA Consultation that duct access is currently provided by Eircom in the wholesale market.
- 5.20 Regulation 12(1) of the Access Regulations provides that ComReg can impose access obligations where ComReg considers that a denial of access would hinder the emergence of sustainable competition at the retail level, would not be in the interests of end-users or would otherwise hinder the achievement of ComReg's objectives as set out in Section 12 of the Communications Regulation Act or Regulation 16 of the Framework Regulations and the consideration of these are discussed in Section 14 in the regulatory impact assessment (the "RIA").
- 5.21 Regulation 12(4) of the Access Regulations stipulates a requirement for ComReg to assess the proportionality of any access obligation. The technical and economic viability; the feasibility of providing access in relation to the capacity available; the initial outlay of investment by the operator, the need to safeguard competition as well as other factors including any relevant intellectual property rights and the provision of pan-European services, all need to be taken into account when assessing any obligation to provide access. All of these factors are analysed in detail in the RIA in Section 14.

- 5.22 The terms and conditions for access should facilitate competition but at the same time take into account the initial outlay of the operator. In its response to the initial consultation, Eircom suggested that in instances where civil engineering infrastructure is not technically or economically viable, non-physical or virtual access is the only proportionate remedy. While recognising a need for duct access, Vodafone add that it would be disproportionate to mandate access to civil engineering infrastructure where it would raise the costs of providing NGA services significantly. It suggests that the proportionality of the measure needs to be considered.
- 5.23 Contrary to this view, certain respondents to the First NGA Consultation believe that there will be a demand for access to civil engineering infrastructure to provide next generation products and services. Access to Eircom's civil engineering infrastructure may afford access seekers with the opportunity to extend their network towards the end-user. For example, operators may build fibre paths and may decide to implement a fibre solution that meets their own requirements.
- 5.24 In line with the NGA Recommendation, we believe that access to civil engineering infrastructure facilitates investment at the deepest level of the network. The practicalities of providing access to civil engineering infrastructure have been taken into account and we have applied the standards set out in Regulation 12(4) of the Access Regulations.
- 5.25 We recognise that in certain circumstances it may not be possible to provide access to civil engineering infrastructure, on foot of a request by an OAO, for technical or capacity reasons for example, though this should be in exceptional circumstances. Where this is shown to be the case and it is considered reasonable to request dark fibre rather than civil engineering Infrastructure access, this alternative solution should be offered to the Access Seeker.
- 5.26 Dark fibre is not civil engineering infrastructure, however it should be provided as an alternative to access to civil engineering infrastructure, where it is available and on the basis of a reasonable request. By "reasonable" we mean, for example, fibre in excess of spare capacity legitimately required by Eircom to cater for future capacity requirements or needed for resilience purposes. This may be assessed by reference to Eircom's engineering rules.
- 5.27 In considering whether mandating dark fibre in the access network other than in the circumstances outlined would be necessary or proportionate, we have taken into account its inclusion as an input into mandated wholesale products such as the unbundled fibre loop and associated facilities such as backhaul for SLU.

- 5.28 It is expected that civil engineering infrastructure is managed by Eircom, such that redundant cabling, for example, would not unnecessarily and inefficiently consume duct space or pole real estate thereby rendering it unavailable. All of these issues would inform how an access request is to be considered by Eircom and consequently assessed by ComReg in the event of a dispute.
- 5.29 In terms of the process and pricing of this form of access, Eircom has an obligation to negotiate in good faith. In Section 11 we state that the pricing of access to civil engineering infrastructure should be cost oriented, based on a depreciated historical cost accounting (“HCA”) method plus any actual incremental costs associated with remediation and on-going maintenance together with a rate of return. It is proposed that dark fibre access would be priced as at current cost for the fibre element plus a share of the cost of underlying civil engineering infrastructure at historical costs.
- 5.30 As a matter of practicality ComReg would allow a period of three months for all aspects of a request for access to civil engineering infrastructure, including reaching agreement on pricing, as detailed later in this section. If agreement is not reached by then ComReg would intervene and set prices by reference to the principles set out above. If the price of civil engineering is genuinely uneconomic an access seeker could opt for dark fibre – priced as set out above – if reasonably available.
- 5.31 It is noted that there have been relatively few requests for access to civil engineering infrastructure since it was mandated. Our approach attempts to find a proportionate solution for access to civil engineering infrastructure however, we are of the view that it is unlikely that the demand for access to civil engineering infrastructure will increase significantly in the short to medium term.
- 5.32 In the context of historic demand, we do not consider that it would be either proportionate or necessary to require Eircom to develop additional systems such as a civil engineering infrastructure database to support an obligation of access to civil infrastructure, as has been either suggested or followed in other European Member States.
- 5.33 Though it has been suggested by the NGA Recommendation, ComReg does not consider it proportionate to require the SMP operator to build additional spare civil engineering infrastructure capacity when deploying NGA, over and above the spare capacity catered for by normal engineering rules. Eircom stated in their response to the First NGA Consultation that it is not an economically viable solution and if there was a remedy to build extra capacity, it should include a substantial risk premium.

- 5.34 Underpinning the European Commission's objectives to facilitate access to civil engineering physical infrastructure is a recommendation to ensure that access should be provided "*in accordance with the principles of equivalence*"⁶³. We expect that Eircom would accept and process access requests in a way which is equivalent to the manner in which it accepts and processes its own requests for access to civil infrastructure, i.e. for self provision.
- 5.35 Notwithstanding, a process must be made available to allow OAOs to efficiently and effectively gain access. For clarity ComReg would see access to civil engineering infrastructure being offered on an Equivalence of Output ("EoO") basis⁶⁴ as it may prove difficult and costly to develop legacy systems and certain processes to meet the standard of Equivalence of Input ("EoI")⁶⁵. We take this approach in light of known demand for duct access and therefore consider that this would be a proportionate approach. Should the level of demand for civil engineering increase, we may review the application of the non-discrimination obligation. The application of EoO/EoI in general, is further discussed in Section 8 of this document.
- 5.36 EoO in this context would include equivalence in the supply of information, on foot of a request, to an access seeker regarding location and availability of civil engineering infrastructure such as duct space and distribution points, and in the time and quality of the response to the request for access. The elapsed time between an OAO first making a request for information relating to the availability of duct (or any civil engineering asset in the access network) and being offered access at a given price should not exceed three calendar months.

⁶³ Article 15 of the NGA Recommendation.

⁶⁴ "Equivalence of Output" means that Eircom shall provide all wholesale access products to Access Seekers in a manner which is comparable or identical to those it provides to itself in terms of functionality and price, albeit potentially using different systems and processes. A detailed discussion on EoI / EoO is contained in Section 8 of this consultation.

⁶⁵ "Equivalence of Input" means that Eircom shall provide all services and information to all Access Seekers and to itself in the same timescales, and on the same terms and conditions (including price and service levels) by means of the same systems and processes. In particular, it includes the use by Eircom of such systems and processes in the same way and with the same degree of reliability and performance when providing services and information to all Access Seekers as well as to itself. A detailed discussion on EoI / EoO is contained in Section 8 of this consultation.

- 5.37 This would require the development of a reference offer and process manual by Eircom such that an OAO would understand how to access information and how to make a request for access to civil engineering infrastructure. Information on how the request will be assessed and the timescales for a response to a request for information or access should also be included in the reference offer. The pricing of civil engineering infrastructure will not be specified in the reference offer but should be negotiated within the three month period.
- 5.38 The reference offer should also clarify that the request for access to civil engineering infrastructure will trigger an evaluation process for dark fibre access in the event that civil infrastructure capacity is not available. Both activities should be managed efficiently on foot of the initial OAO request and within the three month period.

ComReg's preliminary conclusion:

- 5.39 Eircom will have an obligation to provide access to civil engineering infrastructure on an equivalent (EoO) basis.
- 5.40 Where access to civil engineering is not available for technical or capacity reasons, Eircom will be obliged to provide access to dark fibre, where it is reasonably available.
- 5.41 An offer for civil engineering infrastructure access should be achieved through negotiations, with pricing on a cost orientation basis. These negotiations need to be concluded within three months after the point when an OAO makes a request for information on the availability of civil engineering infrastructure associated with the access request. If negotiations break down, or have not concluded within this period, ComReg may intervene to set a price for access.
- 5.42 All information relevant to the access request process should be incorporated into a civil engineering infrastructure reference offer. The reference offer should also include information on the process whereby access requests are assessed. Eircom should ensure that adequate information regarding the location of civil engineering infrastructure such as duct location, space and available dark fibre, is made available to OAOs, on request. This should also be detailed in the reference offer.
- 5.43 The reference offer should also include the processes whereby civil engineering infrastructure access requests may be met by the provision of available dark fibre in the event that the request for access to civil engineering infrastructure cannot be met. This should be completed within the three month period.

Q. 3 Do you agree with ComReg's preliminary conclusions on mandating access to civil engineering infrastructure and where reasonable to dark fibre? Do you believe that this approach is necessary, justified and proportionate? Please provide reasons and evidence for your answer.

5.5 Unbundled access to the fibre loop and access to the terminating segment for FTTH

5.5.1 Unbundled Access to the fibre loop

- 5.44 The NGA Recommendation advises that where an SMP operator deploys FTTH that NRAs should, in principle, mandate unbundled access to the fibre loop. The NGA Recommendation also states that unbundled access to the fibre loop should be provided regardless of the network architecture chosen by the SMP operator.
- 5.45 Eircom has stated that FTTH will be deployed for a small proportion of premises which are directly connected to an exchange i.e. where a cabinet is not deployed in the access path between the exchange and the customer premises. An opportunity to offer an FTTC solution does not arise in this case and end users are served by fibre running directly from the exchange.
- 5.46 For directly connected customers we understand that the fibre may be deployed in a number of ways, including, inter alia, the following:
- A point to point fibre connection between the exchange and customer premises.
 - A GPON solution may be deployed with the splitter placed in the exchange.
 - A GPON solution may be deployed with the splitter placed somewhere in the access path.
- 5.47 There are difficulties perceived with unbundling fibre in a GPON architecture, however if multiple fibres are deployed in the feeder segment, as is normally the case, then the shared aspect of GPON technology may no longer be a barrier to unbundling. A separate fibre path can be built in the access path using GPON technology by using available fibre in the feeder segment and placing an additional splitter in the cabinet, in effect deploying a parallel GPON infrastructure for use by an operator who has co-located at the parent exchange.

- 5.48 In this way, a form of fibre unbundling in a GPON environment is possible by implementing a parallel GPON network. Eircom's Fibre Unbundled Access product which was offered as part of Eircom's NGA Pilot was an example of how this could be implemented.
- 5.49 Though there are currently no immediate plans for an extensive FTTH deployment, in the event that FTTH is rolled out, we believe that the availability of an unbundled fibre product would be required in order to promote infrastructural competition. Such a wholesale product would allow OAOs to have full control over the fibre access path in order to offer diversified service offerings to the end user. Should there be a wider deployment of FTTH in the future, such that copper sub-loop is replaced by fibre, we would need to consider whether access would be necessary, appropriate and justified, however this would be subject to consultation.
- 5.50 Furthermore OAOs have already invested and continue to invest in co-location at a number of exchanges and in the event of an FTTH rollout then such a requirement would allow OAOs to continue to make a return on that investment. Therefore, both co-location and backhaul are also required in an NGA context, i.e. for FTTH. This is considered in further detail below.
- 5.51 Thus, in the case of FTTH ComReg believes it is proportionate to mandate that unbundled access to the fibre loop should be provided by Eircom, regardless of the network topology, infrastructure or architecture deployed.

5.5.2 Access to the terminating segment for FTTH

- 5.52 The NGA Recommendation defines the terminating segment only in the context of FTTH and advises that access to the terminating segment should be mandated. It explains that duplication of the terminating segment of the fibre loop will normally be "costly and inefficient"⁶⁶. It also states that access to the terminating segment should be mandated by NRAs in the context of FTTH and hence is given particular attention in the NGA Recommendation.
- 5.53 The terminating segment as defined in the NGA Recommendation means the segment of the NGA network that connects an end-user's premises to the first distribution point⁶⁷. The first distribution point is normally in close proximity to end-user's premises e.g. in a nearby manhole, basement etc. The Commission is of the view that "*duplication of the terminating segment of the fibre loop will normally be costly and inefficient.*"⁶⁸

⁶⁶ Section 16 of the NGA Recommendation.

⁶⁷ Paragraph 2 of the NGA Recommendation. The 'terminating segment' means the segment of an NGA access network which connects an end-user's premises to the first distribution point. The

- 5.54 The NGA Recommendation also states that *“to ensure efficient entry, it is important that access to the terminating segment is granted at a level in the network of the SMP operator which enables entrants to achieve minimum efficient scale to support effective and sustainable competition. Where necessary specific interfaces could be required to ensure efficient access.”*⁶⁹
- 5.55 Both BT and Vodafone consider that there is a need for an obligation mandating access to the terminating segment. Vodafone also agrees with the NGA Recommendation whereby economic and technical considerations need to be taken into account when determining access requirements at other points in the network. The NGA Recommendation advises that in order for access to be commercially viable, the access point in the network will need to host a sufficient number of end-user connections. ComReg’s view is that the point at which it would be commercially viable, given the network architecture proposed, would be at the MPoP⁷⁰. The MPoP is normally at the exchange, as operators have already chosen to unbundle at a number of exchanges.
- 5.56 Consideration of access to the terminating segment in the case of FTTH has specific relevance in more densely populated Member States where multi-dwelling premises are common and access at many points along the network could be considered. Fibre unbundling delivers the required access to the full fibre loop, from the exchange, which includes the terminating segment. In light of the extent of FTTH planned by Eircom and the benefits of FTTH, we consider that it would not be proportionate to mandate access to the terminating segment in addition to unbundled access to the fibre loop. Should a wider roll out of FTTH ensue, we may revisit this issue.

ComReg’s preliminary conclusions:

- 5.57 Unbundled access to the fibre loop should be provided by Eircom, regardless of the network topology, infrastructure or architecture deployed.
- 5.58 Where access to the fibre loop is required, co-location and backhaul facilities should be provided.
- 5.59 Eircom will be obliged to ensure that a reference offer is in place as soon as possible and not later than six months after the date of the Decision.

terminating segment thus includes vertical in-building wiring and possibly horizontal wiring up to an optical splitter located in a building’s basement or a nearby manhole.

⁶⁸ Section 16 of the NGA Recommendation.

⁶⁹ Section 16 of the NGA Recommendation.

⁷⁰ Metropolitan Point of Presence or (MPoP) means the point of inter-connection between the access and core networks. It is equivalent to the Main Distribution Frame (MDF) in the case of the copper access network. All NGA subscribers’ connections in a given area (usually a town or part of a town) are centralised to the MPoP on an Optical Distribution Frame (ODF).

- 5.60 In accordance with the NGA Recommendation, access should be provided consistent with the provisions of the Non-discrimination Obligation, set out in Section 8. It will be priced in a way which is consistent with the pricing of the access network or a similar valuation.
- 5.61 Access to the terminating segment for FTTH is not mandated; however we may review whether it is required in the event of a wider roll out of FTTH.

Q. 4 Do you agree with ComReg's preliminary conclusions on network access in the context of FTTH? Please provide reasons for your answer.

5.6 Next generation access in the context of a FTTN deployment

- 5.62 Fibre to the Node ("FTTN"), in general, refers to a situation where fibre is deployed to, but not beyond, a network node on the access path between the exchange and the end-user premises. Eircom has deployed fibre to a particular node, in this case the street cabinet. Therefore, a particular type of FTTN solution is being deployed, which can be referred to as a fibre to the cabinet network deployment (see Figure 2 on page 49).
- 5.63 Access to the copper sub-loop (or sub loop unbundling ("SLU")) is mandated in the WPNIA market for current generation access. The NGA Recommendation advises that NRAs impose an obligation of unbundled access to the copper sub-loop to further promote infrastructure investment. This obligation should be supported by appropriate backhaul measures.
- 5.64 As highlighted earlier in this consultation ComReg considers that although it is not in Eircom's plans at present, Eircom may decide to deploy FTTH by extending fibre in the access path, to include the portion of the access path between the cabinet and end user premises. In this scenario there would be a requirement for ComReg to examine whether the NGA WPNIA access obligations are sufficient to ensure competitive access, particularly where there is demand and uptake of SLU. This would be subject to consultation.
- 5.65 The nature of Eircom's NGA implementation is such that exchange-launched voice services over copper to the cabinet can co-exist on the copper sub-loop with cabinet-launched DSL services. This co-existence could arise while the copper remains in the feeder segment of the access network.

- 5.66 The requirement of shared access to the copper sub-loop may emerge as a possible requirement when the NGA architecture is implemented. This could arise, for example, where one operator avails of cabinet unbundling and a different operator provides voice services from the exchange, to the same customer. In this situation, different operators would provide the narrowband and broadband services over the sub-loop.
- 5.67 There are a number of possible schemes and technologies which may allow even higher speeds to be achieved on the copper sub-loop than those which VDSL2 currently provides. ComReg is cognisant of the fact that DSL technologies and VDSL technologies, in particular, are in a state of flux. This is because equipment manufacturers realise that incumbents would rather retain and sweat their copper asset for as long as possible; particularly when technical developments, resulting in significantly higher speeds, hold out the prospect of increased revenues from these assets.
- 5.68 Some technical aspects of emerging bandwidth enhancing technologies are not sufficiently clear at this point. Therefore, while operators have expressed a strong interest in deploying such technologies, it is unlikely that definite business decisions can be made until operators are in full possession of the commercial and technical facts. Given the uncertainty of market developments, our regulatory approach for access to FTTN is open to consultation.
- 5.69 An emerging bandwidth enhancing technology which Eircom has stated it intends to deploy is vectoring. By deploying VDSL2 vectoring technology for cabinet-launched services, an operator may be able to offer significantly higher speeds; speeds of up to 100mb/s and beyond. Other technologies such as “phantoming”, which uses bonded (two or more) coppers pairs into the customer premises can, it is claimed, yield multiples of existing speeds.
- 5.70 It would appear that, for technical reasons, the deployment of vectoring at a cabinet by one operator does not permit another operator to concurrently deploy its own VDSL2 equipment at that cabinet, as both operators will need to manage all copper pairs housed in the same distribution cable for vectoring to be possible. It would appear that the use and implementation of vectoring technology at a cabinet, precludes the use of the copper sub-loop by more than one operator. The deployment of vectoring by Eircom or an OAO at a cabinet would render concurrent SLU by another operator at that cabinet, ineffective.

- 5.71 Higher speeds could allow for the development and availability of a richer range of products and services. Our approach will focus on establishing favourable conditions for the deployment of such technologies that deliver consumer benefits while continuing to ensure that the ability to compete is not unduly impacted. In fact, there are other bandwidth enhancing technologies or end-user services that could emerge, and our preference would be for the deployment of any technology that can offer at least the same functionality and speeds as vectoring, particularly, where it does not impede wholesale access.
- 5.72 A balance must be found that allows operators to develop products that harness the potential benefits of emerging technologies, while allowing all operators the opportunity to avail of a range of forms of access, including SLU. Vectoring has been chosen by Eircom as the technical solution that it plans to adopt; as deployment is likely to happen during the lifetime of this review, ComReg must consider the mutual exclusivity of vectoring, and the subsequent competitive impact on SLU.
- 5.73 For clarity, while explicit mention is given to vectoring, a similar approach would be applied when considering the implications of any bandwidth enhancing technology or any other technology whose deployment in a cabinet or node prevents more than one operator offering services.
- 5.74 It is not yet certain when vectoring will be available on the market. We are aware that in some Member States incumbents have engaged in a small scale trial of vectoring but that a commercially available vectoring product may not be widely available in the short term. We understand that it could be approximately two years before such equipment is available. We are also mindful of the possibility that alternative solutions for delivering higher speeds over the copper sub-loop may become available in that time frame. It is also possible that a technical solution which facilitates a number of concurrent operators offering services from the same cabinet, where vectoring has been deployed, could emerge at a future date.
- 5.75 A deployment of vectoring technology has implications for the currently mandated sub-loop unbundling remedy. According to Eircom, fibre roll out will be limited to committed NGA areas and during Phase 1 of its fibre rollout plan this will concentrate on ten exchanges. ComReg is considering options on the obligation to provide SLU in NGA footprint areas, given the market and end-user benefits that may be gained from vectoring.
- 5.76 A practical approach is required to facilitate operators willing to take investment risks. The regulatory approach aims to create favourable conditions for the deployment of technology that enhances end user welfare.

- 5.77 It is understood that an operator implementing vectoring at a cabinet would need to manage all VDSL copper sub-loops emanating from that cabinet to achieve higher speeds. It is unlikely that prior to a cabinet being unbundled, that any operator would be an exclusive provider of retail services from that cabinet. It would seem logical and reasonable, that implementation of vectoring by an operator would necessitate the offer of wholesale inputs to other operators to allow them to continue to provide services to their customers from that cabinet.
- 5.78 Therefore, where vectoring or another similar bandwidth enhancing technology is available, and the limits of mutual exclusivity are proven, ComReg is of the view that an SLU request at a cabinet would only be deemed reasonable should an operator agree to the supply to other operators of fit for purpose wholesale inputs, comparable with similar, available regulated inputs, allowing OAOs to develop a uniform retail product offering.
- 5.79 In light of the uplift in speed that can be achieved, it would appear reasonable to facilitate any operator, either the incumbent or an alternative operator, to use vectoring (or any other bandwidth enhancing technology) within a cabinet, notwithstanding the exclusivity issues that might result. ComReg favours solutions that find the appropriate balance between optimising competition and increasing the quality and capabilities of the services on offer to end users.
- 5.80 We are aware that recent changes to the Copper Loop Frequency Management Plan⁷¹ offer the possibility of significant increases in bandwidth. Therefore it may be possible that the higher speeds achievable through these changes, may meet market demand and although available, operators may not choose to implement additional bandwidth enhancing technologies.
- 5.81 Taking into account the benefits of vectoring and the absence of demand for SLU, we have considered the appropriateness of maintaining the obligation to provide SLU. ComReg proposes these options based on the currently understood restrictions associated with the deployment of vectoring technology. ComReg would expect that, should they exist at the time commercial decisions are made; operators should consider alternative technologies which offer largely similar benefits but do so without the restrictions associated with vectoring.

⁷¹ In order to control interference within an access network and so produce a predictable environment so that operators can make deployment decisions, it is necessary to have some form of frequency plan to which all deployed services conform. This is referred to as the Copper Loop Frequency Management Plan (CLFMP).

5.82 As current trends seem to indicate the emergence of bandwidth enhancing technologies which impact SLU, ComReg has considered scenarios where the SLU obligation could be withdrawn or amended. The withdrawal of the SLU obligation from certain exchange areas or at certain cabinet footprints can be approached in a number of different ways and we are interested in the views of respondents to these options.

5.6.1 Conditions applicable to options

- The options considered are in the context of considering the implications of potential restrictions on co-location in the cabinet, where bandwidth enhancing technologies are planned.
- Progression of the targets for the European Digital Agenda and end-user benefits are taken into consideration.
- SLU obligation would remain in place in Non-NGA Areas
- Any consideration of amendment or withdrawal of the SLU obligation would only apply to NGA footprint areas e.g. exchanges with lines greater than 1,800.
- The deployment plan for the rollout of bandwidth enhancing technology should be notified to ComReg to ensure transparency.
- The withdrawal of the SLU obligation would require notification to the European Commission under Article 7(3) and 7a of the Framework Directive⁷²; there is a one month notification period.
- Access to the sub-loop by any operator would be conditional on:
 - deployment of bandwidth enhancing technology commencing within a short period, in the order of months, of notifying ComReg
 - Non SMP Operators who deploy vectoring agree to the supply to other operators fit for purpose NGA wholesale inputs; comparable with similar, available regulated inputs, allowing other operators to develop a uniform retail product offering.
- The appropriateness of the Option for SLU would be reviewed by ComReg three years after it is enacted.

⁷² Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), as amended by Directive 2009/140/EC of the European Parliament and of the Council of 25 November 2009.

The following options are considered:

5.6.2 Option A: Modification of the obligation of SLU in NGA Areas

- 5.83 This option would be conditional on the deployment of a bandwidth enhancing technology by an operator. It would also be conditional on an alternative technology, offering largely similar benefits but without similar restrictions, not being available at the time of notification to ComReg.
- 5.84 The SLU obligation would be amended in NGA footprint areas, such that an OAO may make a request for access, on the basis of a reasonable request. This option would accommodate an operator planning to unbundle the sub-loop and deploy a bandwidth enhancing technology, such as vectoring. The OAO would be required to make a request to deploy the bandwidth enhancing technology, in particular exchange area(s). Similarly, Eircom would also be required to notify ComReg of its intentions to deploy vectoring during this three year period, across the NGA footprint area.
- 5.85 Should any operator make a request to deploy the bandwidth enhancing technology in an exchange area or across a number of exchange areas, then it would be required to provide a rollout plan, including milestones for phased deployment on a cabinet by cabinet and an exchange by exchange basis, to be considered and approved by ComReg. Adherence to the rollout plan would be required for an operator to retain exclusive permission to continue to rollout vectoring.
- 5.86 Permission to exclusively deploy vectoring in an exchange area would be granted for a reasonable period agreed by ComReg, during which time the bandwidth enhancing technology would have to be deployed. This requirement would need to be reflected in the operators SLU deployment plan. If bandwidth enhancing technology such as vectoring is not implemented and, in the case of OAOs, if wholesale NGA services are not supplied to a standard comparable to those regulated NGA services being offered by Eircom then the exclusive access by that operator could be withdrawn.
- 5.87 The process would require that the NGA exchange or cabinet areas where an OAO intends rolling out vectoring technology would be identified by the OAO, by making its SLU deployment plan available to other operators in advance of deployment.
- 5.88 Where more than one operator elects to rollout bandwidth enhancing technology in the same area(s) then ComReg would establish criteria in order to determine which operator would be allowed to have exclusive access in that area(s).

- 5.89 Notification and full rollout would be required to occur within a three-year period from the date of such a decision.

5.6.3 Option B: Access to the sub-loop withdrawn in NGA areas, conditional on the roll out of bandwidth enhancing technology by Eircom.

- 5.90 This option would be conditional on the deployment of a bandwidth enhancing technology by Eircom. It would also be conditional on an alternative technology, offering largely similar benefits but without similar restrictions, not being available at the time of notification to ComReg.
- 5.91 The obligation to provide access to the copper sub-loop would be withdrawn in certain NGA area(s)/cabinet(s) following the Decision of this review, in order to allow Eircom to deploy a bandwidth enhancing technology, such as vectoring. This would be justified on the basis that such technology facilitates delivery of higher speeds to end users and given negligible demand for SLU to date, it would not be considered proportionate to continue the obligation at the expense of being able to offer high speed services to end-users.
- 5.92 This approach would give clarity to Eircom, which is currently taking the risk of investing in NGA. The process would require that the NGA exchange or cabinet areas where Eircom intends rolling out vectoring technology would be identified by Eircom, through the obligation of transparency, by making network development plans available to OAOs.
- 5.93 Permission to exclusively deploy vectoring at a cabinet or in an exchange area would be granted for a reasonable period agreed by ComReg, during which time vectoring would have to be deployed. This requirement would need to be reflected in Eircom's SLU deployment plan.
- 5.94 Eircom would be required to furnish a rollout plan including milestones for deploying vectoring on a cabinet by cabinet and an exchange by exchange basis, to be considered and approved by ComReg. Provision of NGA wholesale services (such as WBA) in order to allow services to be offered by OAOs to the retail market would be required in accordance with Eircom's obligations. Adherence to the rollout plan would be required for Eircom to retain exclusive access.
- 5.95 In addition if vectoring has not been rolled out in particular areas after a period of three years then the obligation could be re-instated in those areas.

5.6.4 Option C: Access to the sub-loop continues to be mandated

- 5.96 The obligation to provide SLU would remain in the medium term, until bandwidth enhancing technologies mature and their benefits and network impacts are well understood. For the avoidance of any doubt, under Option C the current SLU obligation contained in the WPNIA Decision remains unchanged⁷³ and we note that there has been no take up of SLU to date.
- 5.97 ComReg's policy objective is to prioritise the requirements of any operator that invests in bandwidth enhancing technology to serve end-user demand in the most effective way. An OAO that considers implementing SLU should be aware that unless it also deploys bandwidth enhancing technologies (in circumstances where ComReg considered it appropriate) and provides wholesale access to other operators, then we would consider the withdrawal of the SLU obligation in respect of that operator.
- 5.98 Our deliberations on the withdrawal of the SLU obligation would be informed by a request from Eircom or another OAO to deploy such a technology. Where bandwidth enhancing technology had not been implemented and another operator was willing to invest (and could demonstrate this) in the same area, we believe that in order to maximise consumer welfare, such investment should be facilitated.
- 5.99 In addition to the deployment of bandwidth enhancing technology, the OAO implementing SLU should provide other operators with fit for purpose NGA wholesale inputs, comparable with similar, available WBA products, thereby allowing operators to develop uniform retail product offerings, a uniform retail offering would allow an operator to achieve scale in an efficient and cost effective manner.
- 5.100 Thus if an OAO unbundled sub-loops and deployed bandwidth-enhancing technology, for example vectoring, and offered NGA wholesale services to other operators, it may not be necessary or justified to remove the SLU obligation. This approach would incentivise all operators to deploy bandwidth-enhancing technology.

⁷³ See section 7.2 of the WPNIA Decision which mandates access to full sub-loop unbundling, combined with GNP where required and shared sub-loop unbundling.

- 5.101 Where more than one operator elects to rollout vectoring in the same area(s) then ComReg would establish criteria in order to determine which operator would be allowed to have exclusive access in that area(s). It is possible that the planned deployment of one operator may not have comparable consumer benefits (in terms of product availability or choice) to those which another candidate operator might provide; we would consider issues such as this.
- 5.102 If bandwidth enhancing technology is not deployed by an OAO who has unbundled a cabinet(s) the SLU obligation could be withdrawn. ComReg would consult where such a decision would have an appreciable impact on the relevant market; a wide range of issues including the overall benefits to consumers would be considered, where the SLU operator does not rollout bandwidth enhancing technology.
- 5.103 In such a scenario, the type of issues that ComReg would consider from a consumer perspective would be issues such as the service mix, potential to offer higher speed services, the demand for higher speed services etc. If the SLU obligation was withdrawn the OAO would no longer have access to the sub-loop and potentially any SLU investment could be stranded.
- 5.104 Eircom may request the withdrawal of access to facilities already granted i.e. sub-loops, in order that it can deploy bandwidth-enhancing technology. In the event that Eircom can credibly demonstrate that it will deploy bandwidth-enhancing technology in a particular timeframe, and taking account of the plans of other operators in this regard, this may trigger a consultation process on the withdrawal of obligation to provide access to SLU.
- 5.105 Any removal of the obligation to provide access to the copper sub-loop, would be subject to a further consultation.
- 5.106 In the situation where the SLU obligation is withdrawn, following a future consultation, and the OAO has retail customers, there would be a need for safeguards to ensure those customers were not disconnected. An appropriate migration process to alternative wholesale product(s) would be required.

ComReg's preliminary conclusions:

- 5.107 It would appear that, at present, the use of VDSL2 vectoring technology at a cabinet is mutually exclusive to concurrent unbundling of the copper sub-loop by other operators at the same cabinet. Therefore, it is arguable that it would not be proportionate or justified to continue to mandate SLU in all NGA areas. In this case, ComReg has proposed options for removal of SLU access and seeks the views of industry on these options or to propose other options with reasoned arguments.

5.108 In an alternative scenario, as outlined, the SLU obligation could be maintained. ComReg would monitor market and technology developments and if appropriate consult on the removal of the SLU obligation in the future.

5.109 ComReg considers each option is potentially viable and aims to find the most proportionate solution which protects competition and end user interests yet supports the risks taken by any investing operator.

Q. 5 Do you agree with ComReg's preliminary conclusions, the Options outlined and related processes with regard to the access obligation for FTTN/C through access to the sub-loop? Please provide reasons for your response.

Q. 6 Do you agree with the general conditions which would apply to all options? Please provide reasons for your response.

Q. 7 Do you intend to make a request for access to the sub-loop and on what scale? Please provide reasons for your response.

Q. 8 Do you intend to deploy a bandwidth enhancing technology for NGA; if so which options are likely and are there any competitive implications? Please provide reasons, practical justification for your response or any alternative suggestion.

5.7 Backhaul

5.110 Backhaul is required in order to ensure interoperability between networks and to enable connectivity from a co-located operator's equipment in an Eircom exchange or node to the point of handover for WPNIA services. Access seekers are dependent on Eircom for interoperability and connectivity to the Eircom network.

5.111 Backhaul for WPNIA services is provided through the markets for terminating segments for leased lines. This was mandated through the Decision in the market for wholesale terminating segments of leased lines, in ComReg Decision D06/08⁷⁴. The same requirement exists for a backhaul product for NGA WPNIA services.

⁷⁴ ComReg Document No 08/103 (ComReg Decision D06/08).

5.112 Eircom launched an LLU backhaul product with available bandwidths of 1 and 10 Gb/s in December 2011. In the WPNIA market Eircom is obliged to allow an operator to have its own fibre pulled into an Eircom exchange and thereby connect to its collocated equipment as an associated facility. The Backhaul product, which is available for LLU specifically, should also be made available for all NGA WPNIA products. Any additional provision of backhaul, should it occur, can be made available based on a reasonable request by an OAO.

5.113 Specifically, in the context of next generation access, an access seeker intending to unbundle a sub-loop will require backhaul from the cabinet or node to a point of handover in the exchange or higher in the network as without backhaul these products would be rendered ineffective. The NGA Recommendation states that:

“A copper sub-loop unbundling remedy should be supplemented by backhaul measures including fibre and Ethernet backhaul where appropriate....”⁷⁵.

5.114 Given the advice of the NGA Recommendation, where access to the copper sub-loop is required for providing next generation WPNIA, it is both proportionate and justified to require Eircom to provide backhaul measures for the copper sub-loop; as it is considered to be a facility associated with WPNIA. The pricing of this backhaul measure for the copper sub-loop would be based on cost orientation – BU-LRAIC, consistent with the Copper Access Network Model.

5.115 Furthermore, access to backhaul facilities at the exchange should be made available for NGA products and services in conjunction with the provisions of ComReg Decision No D05/10 and ComReg Decision No D06/08.

ComReg's preliminary conclusions:

5.116 Eircom will have an obligation to provide backhaul to enable the provision of next generation WPNIA products and services.

⁷⁵ The NGA Recommendation; Article (29).

5.8 Cabinet and exchange co-location

- 5.117 Eircom has chosen to deploy a FTTC/VDSL solution for the vast majority of its NGA rollout. FTTC/VDSL solutions require active equipment to be placed in a street cabinet. The current street cabinets house a termination frame for the sub-loops, which enables a cross-connect to a main cable which is then routed to the exchange to complete the path from the customer premises to the core network. The street cabinets currently deployed do not have the physical space to accommodate the active equipment required for VDSL. To solve this problem more space is required. The two most feasible solutions in the Irish context are the replacement of the existing street cabinet with a larger street cabinet, or have a second street cabinet to house the active VDSL equipment, and then link the new and existing cabinets with a tie cable.
- 5.118 Due to space constraints in a single street cabinet this solution would require Eircom to replace existing street cabinets in the areas where it is deploying NGA. If opting for the one cabinet solution, there is an argument that it should engineer the new cabinet so that an OAO(s) who intends unbundling the sub-loop could deploy their active equipment inside the Eircom cabinet in a similar manner to the existing exchange co-location. However, a single cabinet solution requires greater civil engineering work and more network intervention during cabinet deployment. During the NGA Pilot Eircom evaluated a single cabinet solution for NGA, however it has selected a two cabinet solution for the first phase of the NGA rollout. The two cabinet solution was chosen in other jurisdictions, for example in Northern Ireland, where NGA has been deployed, BT chose a two cabinet solution.
- 5.119 If Eircom deploys the single cabinet solution, there is no guarantee that OAOs would request co-location in the new street cabinet, and demand for SLU, to date, has been low. Therefore, unnecessary costs might be incurred by Eircom. A national rollout of NGA would require a significant upgrade in cabinet real estate.
- 5.120 Even a modest percentage incremental cost for a larger cabinet could become quite significant for a mass-market rollout. Furthermore, if vectoring is deployed then only one operator (based on current technology) can simultaneously use the sub-loop. In this case, the extra space may be redundant. Lastly, ComReg understands that OAOs would prefer a two cabinet solution as there are operational benefits for OAOs in terms of flexibility.

5.121 Co-location in the Eircom street cabinet may be required, however the ability to link existing Eircom cabinets to multiple new co-located OAO cabinets is more likely to be required. The current SLU product provides the OAO with the capability to deploy a street cabinet in close proximity to an existing Eircom street cabinet, i.e. a co-located cabinet, and then link both cabinets with a tie cable which allows access to the sub-loops.

5.122 Traditional exchange co-location is required for next generation WPNIA. Without exchange co-location for next generation WPNIA access products, VUA and FTTH, for example, would be rendered useless for access seekers. Exchange co-location is required in order to provide effective access.

ComReg's preliminary conclusions

5.123 ComReg's preliminary conclusion is that exchange and cabinet co-location is required for FTTC.

<p>Q. 9 Do you agree with the ComReg's analysis for the requirement of Backhaul and exchange and cabinet co-location are required? Please provide reasons for your response.</p>
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Chapter 6

6 Obligation to provide access in the WBA market

Overview

- 6.1 In this section we consider the application of the NGA Recommendation to the wholesale broadband access product in Market 5. We take into account the development of new wholesale broadband access products; the competitive impact of Eircom's fibre to the cabinet solution and options for competitive access by the OAO.
- 6.2 The main points of this section are discussed under the following headings:
- Remedies mandated in the context of WBA
 - Wholesale Broadband Access products
 - Backhaul provision for WBA

6.1 Remedies mandated in the context of WBA

- 6.3 In the WBA Decision ComReg Decision No D06/11, ComReg specified a number of obligations that Eircom is obliged to comply with in respect to the provision of next generation WBA products and services. These include:
- An obligation to meet reasonable requests for access to, and use of, specific WBA network elements and associated facilities.
 - An obligation to negotiate in good faith with OAOs requesting access.
 - Transparency obligations
 - Non-discrimination obligations.
 - Price control and cost accounting obligations.
 - Obligations of accounting separation.
- 6.4 ComReg specified in the decision that it would engage in a consultation to further specify the details of the remedies to apply to NGA products and services in the WBA market.

6.2 Wholesale Broadband Access products

- 6.5 In the WBA Decision, ComReg Decision No. D06/11, Eircom was found to have SMP both in terms of current and next generation WBA products and services. Eircom has an obligation therefore to provide access to any WBA product and service which Eircom self-supplies including WBA over the fibre network infrastructure.
- 6.6 Eircom's Market 5 products are essentially divided into two main products: NGA Bitstream Plus and VUA. Both use fibre and share identical technologies in the access network. Both NGA Bitstream Plus and VUA are described in detail in Annex 5 –“Eircom NGA Rollout –announced products”.

6.2.1 OSI Layers and the relationship between VUA and Bitstream

- 6.7 In general, complexity and limitations regarding the ability to diversify product offerings arises when wholesale offerings are at OSI⁷⁶ layers higher than Layer 2. Current generation Bitstream is a Layer 3 product and operators have less scope to modify the wholesale product and so less potential to offer a differentiated retail product.
- 6.8 ComReg considers that a virtual (or active) access product such as VUA, an active Layer 2 product with local hand off, has the potential to mimic an unbundled copper access path insofar as is practical, and can allow operators to have a high level of control over their product offerings. Therefore, a Layer 2 offering with local hand off could allow operators to replicate the potential which LLU affords i.e. in this sense it is “virtual” unbundled access and can allow the OAO the ability to significantly differentiate products and services to those offered by the incumbent.

6.2.2 Current generation Bitstream

- 6.9 Eircom currently offers Layer 3 encapsulated wholesale bitstream products offering speeds of 1 to 24Mbps downstream and 128kbps to 2Mbps upstream. The product is based on Eircom's footprint of ADSL and ADSL2+ enabled exchanges. A managed backhaul option within the portfolio utilises Eircom's NGN core to make 'uncongested' backhaul available to the access seeker. It is expected that this product will be offered alongside NGA products. It also offers an ATM (Asynchronous Transfer Mode) based product which is aimed specifically at business users.

⁷⁶ The Open Systems Interconnection (OSI) model was developed by the International Organization for Standardization. It consists of a set of seven “layers” that standardize the functions of a communications system. Each layer defines a different stage in the communications process, in general complexity increases as you move up the layers.

6.2.3 Bitstream Plus and NGA Bitstream Plus

- 6.10 Eircom has announced that it intends to launch a bitstream product which it has named “Bitstream Plus”. This will use both current and next generation access technologies. The current generation access technology is that currently deployed by it on its “non-congested” Bitstream Managed Backhaul (BMB) product which uses its NGN core network connected to its exchange-launched ADSL platform. The NGA Bitstream Plus product will use the identical core elements but will use the higher speed FTTH and FTTC access technologies.
- 6.11 NGA Bitstream Plus is analogous to the current generation bitstream product though using both FTTC and the FTTH NGA access technologies. It provides handover or interconnection to the Access Seeker at a limited number of exchanges and provides connectivity to end users on a national basis. This Layer 2 product will allow full control over authentication and traffic management scheme, via class of service (CoS) tagging and has national points of handover or interconnection.

6.2.4 Eircom end-to-end Next Generation Bitstream

- 6.12 Eircom currently provides a current generation resale broadband product to wholesale operators, which ComReg has termed “end-to-end bitstream”. It is also called “White Label” Bitstream. This product allows an operator (“a reseller”) with no infrastructure or corresponding ISP service to offer a broadband service at the retail level. Similar to the Wholesale Switchless Voice (“SV”) product which is sold as “White Label Voice” by Eircom, the key underlying wholesale inputs of this end to end service are regulated while the provision of the end to end product is not.
- 6.13 Other operators are also active in this portion of the wholesale broadband market for which they use the current generation bitstream and LLU products as wholesale inputs. The proposed End-to-End Next Generation Bitstream product offering is subject to the margin squeeze tests imposed as part of the price control obligation as well as pre-notification and compliance requirements. Please refer to Section 11 of this document for further details.

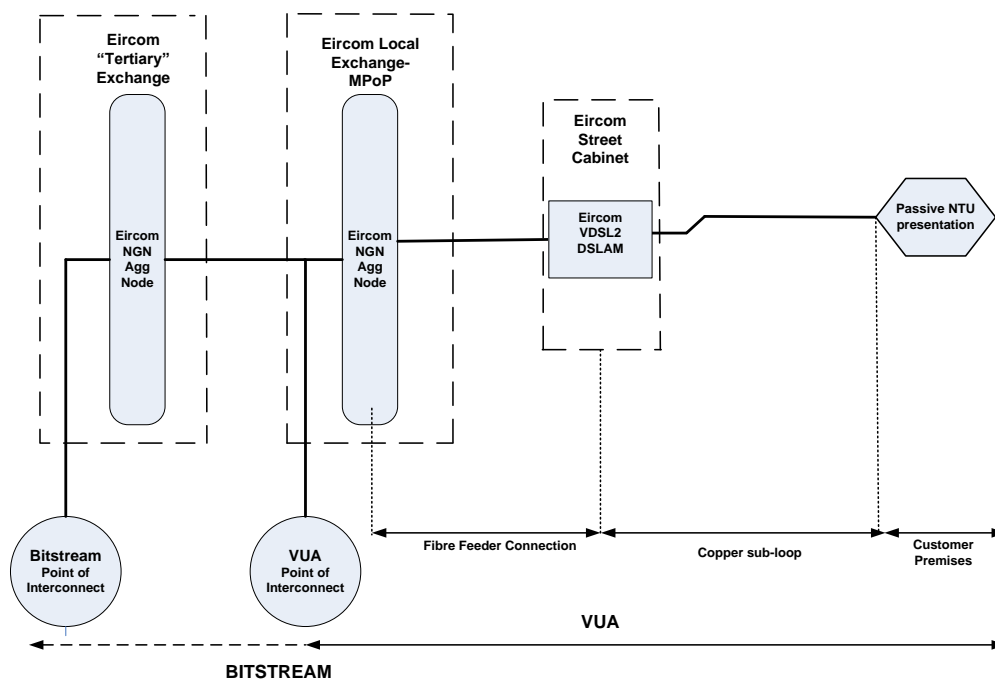
6.2.5 Virtual unbundled access

- 6.14 VUA is also a Layer 2, Ethernet-based product that although an active product, is intended to replicate the product characteristics of LLU in the NGA environment. Instead of providing a physical copper path VUA provides a virtual connection which has the potential to provide operators with a high degree of control over the services they can offer to end-users.

- 6.15 Access seekers will have the option of interconnection with Eircom at any NGN enabled local exchange using their own backhaul arrangements. The service specification will allow an increased degree of control, via Layer 2 Class of Service “CoS” prioritisation than that offered with current generation products. Access seekers will also be able to provide their own authentication with their customers.

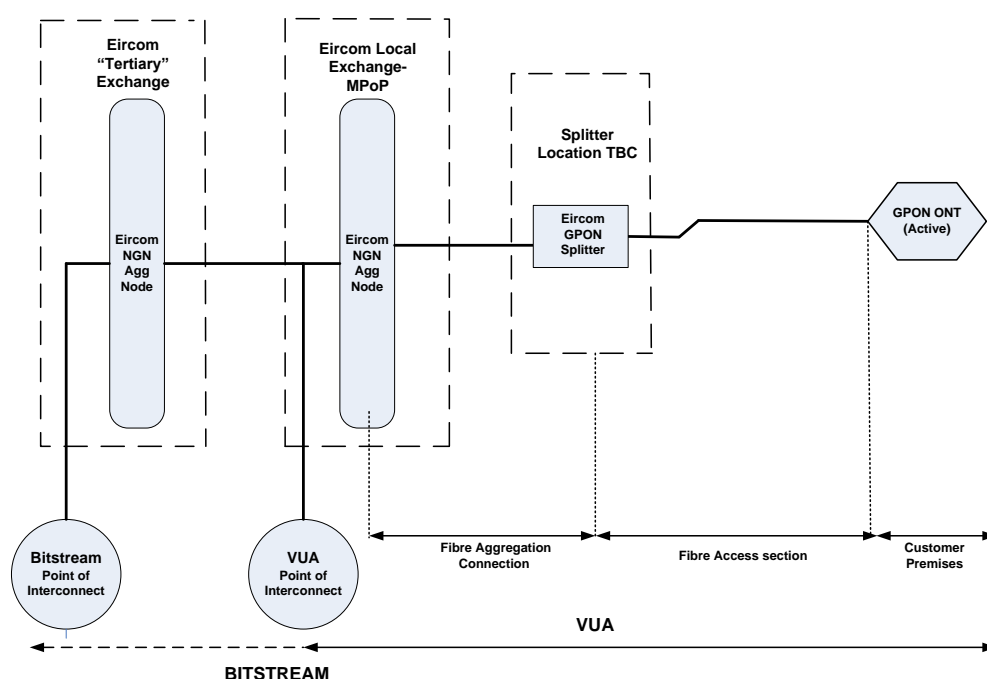
- 6.16 ComReg notes that both products, NGA Bitstream Plus and VUA, can each be bundled with the Eircom current generation exchange-launched wholesale voice Carrier Preselect “CPS” and Wholesale Line Rental (WLR) service and offered together over the copper sub-loop. Alternatively, an access seeker may provide its own VoIP offering over its broadband service independent of Eircom.

Figure 3 Eircom's NGA FTTC architecture



6.17 The VUA product is understood to have the appropriate characteristics of the conceptual Virtual Unbundled Local Access “VULA” type product proposed by other NRA's in Europe. In ComReg's opinion, having reviewed the documentation available at the time, the NGA Pilot product appears to compare favourably with similar wholesale products that are on offer or those proposed or mandated in other member states. ComReg has examined the product specification of the VUA product, which is under development and concludes that the characteristics of VUA seem to have sufficient scope to meet market expectations for service level wholesale access.

Figure 4 Eircom's NGA FTTH architecture



6.18 VUA does not facilitate market entry at the deepest level of the network. It attempts to mimic the main characteristics afforded by the full unbundling of LLU however, it remains to be seen how this will manifest in actual deployment. It provides the opportunity to the OAO to potentially differentiate its product offerings from those of Eircom.

6.19 The VUA product is similar to the Bitstream product set and uses components of physical and non-physical wholesale inputs all of which are regulated elements of the network. Although this product was introduced by the incumbent, initially at the request of an access seeker, the sum of its regulated inputs mean that it mirrors a wholesale broadband access product and is considered to be an appropriate measure for Market 5 by a number of Member States, including Spain, Germany and Italy.

- 6.20 Wholesale access products which attempt to replicate the underlying characteristics of the physical access product may offer a “virtual” alternative to physical access. Virtual or non-physical unbundling however, is designed to facilitate an LLU operator already deeply connected to the incumbent's network at a local exchange level, or is an intermediate step on the "ladder or investment" to those operators who wish to expand the current footprint of their network.
- 6.21 ComReg believes that there is merit in facilitating this service layer access, particularly as a first step to stimulate migration from legacy network products to next generation access products. This has the advantage of allowing market operators to use their existing network infrastructure and expand it. This approach should facilitate the progression on the ladder of investment in an NGA context. Therefore, it should be seen as a market entry mechanism which ultimately could lead to the facilitation of demand, which would meet the long term objectives of the Digital Agenda for Europe.
- 6.22 This remedy was initially suggested by Ofcom in order to try to best replicate many of the features of a fully physical access product. This is a basic Layer 2 product, interconnected at the lowest level possible in the network (the local exchange where possible) to provide the simplest network element feasible to OAOs.
- 6.23 VUA will also be offered at any exchange with an NGN aggregation node whereas the NGA Bitstream Ethernet connection services will only be offered at a small number of nodes or exchanges, similar to the current generation service. It is clear that in order to utilise the VUA product that an OAO will need to co-locate at an exchange therefore we consider that it is reasonable and proportionate that Eircom should provide co-location services at an exchange in order to allow an operator to access VUA.
- 6.24 The VUA product designed by Eircom, initially on request by BT as part of the NGA Pilot, facilitates any operator that has already made considerable investment in order to use the LLU product. In the absence of a VUA product such networks could be effectively rendered stranded or disadvantaged in an NGA situation. It could also create a dependency on future technology choices of the incumbent.
- 6.25 Other NRAs have mandated a “VULA Type” product including Spain, Germany and Italy. The characteristics of such a product have now consolidated to a great extent though not all of these possible features have been mandated in all jurisdictions:
- Ethernet Interface; ubiquitous and allows Layer 2 delivery of data-streams

- allows an OAO to deploy its own authentication and traffic management schemes thereby differentiating its service from that of an incumbent;
- Flexible CPE; allows an OAO to deploy its own CPE though this is still in development in the GPON environment
 - allows an OAO to provide superior CPE to that of the incumbent;
- QoS enabled; allows an OAO to deploy its own QoS scheme
 - allows an OAO to offer enhanced business class services or products;
- Bandwidth control possible; allows an OAO to design its own upstream and downstream speeds
 - allows an OAO to offer a different range of downstream and upstream bandwidths;
- Flexible Interconnection; allows an OAO to interconnect at various point in the network
 - allows an operator the opportunity to match its interconnection policy to its network penetration;
- Multicast enabled; to facilitate the efficient distribution of IPTV
 - can result in a greater range of choice for the consumer.

6.26 There has been a divergence of approach between Member States in terms of how this product is mandated. For example, RTR (the Austrian NRA) and Ofcom have mandated virtual access in Market 4, as a transitional measure to full unbundling while many other NRAs consider this an enhanced bitstream product, akin to WBA. Ofcom acknowledged that any active product could not technically provide the full flexibility which LLU can offer. On the other hand the German NRA, BNetzA⁷⁷, for example mandated a similar, virtual access product in Market 5 and based its conclusions on the fact that any such hybrid lines could not be physically unbundled at the Main Distribution Frame “MDF”.

6.27 The European Regulator’s Group (“ERG”) (now the Body of European Regulators for Electronic Communications “BEREC”) has given the issue some consideration, in its report on Next Generation Access (Economic Analysis and Regulatory Principles) it states that:

⁷⁷ Bundesnetzagentur (German Regulatory Authority for Industries: Telecommunications, Postal Services, Railways, Electricity)

*“The distinction between Market (4) (→ layer 1) and Market 5 (→ Layer 2, 3) as defined in the ERG CP NGA is considered clear and still valid even with the emergence of new bitstream products with more functionalities offering greater scope for innovation. As long as the substitutability gap remains these market should not be blurred in an NGA environment. In addition, in some countries a bitstream product with additional functionalities and diversification possibilities has already existed for some years. Where this has been the case and NRAs have conducted a market review, the NRAs have included this enhanced bitstream product in Market 5 as it does not provide the same flexibility as available with a Market 4 product because the access seeker depends on the technological choice of the SMP operator. This is true for all the different current types of bitstream services”.*⁷⁸

- 6.28 Central to ComReg’s regulatory objectives is encouraging competition at the deepest level of the network and ensuring equality of access. This means putting the right incentives in place to facilitate the ladder of investment. The ERG took a view on access through virtual unbundling and stated:

*“Finally, an important condition for phasing out MDF-access services is the availability of an alternative wholesale product which allows for the continuation of sustainable competition. According to the ladder of investment, a passive wholesale product is preferred over an active wholesale product. In this sense, duct access – imposed by some NRAs and also considered in the draft NGA EC Recommendation – is, like unbundling, a remedy that encourages infrastructure based competition. However, in situations/areas where passive remedies (alone) do not represent a viable alternative and are not enough to address the competition problems, they should be complemented with active remedies such as enhanced bitstream services that provide additional functionality”.*⁷⁹

⁷⁸ Page 12 of Document No. ERG (09) 17, Report on Next Generation Access - Economic Analysis and Regulatory Principles, June 2009;
http://erg.eu.int/doc/publications/erg_09_17_nga_economic_analysis_regulatory_principles_report_09_0603_v1.pdf

⁷⁹ Page 28 of Document No. ERG (09) 17, Report on Next Generation Access - Economic Analysis and Regulatory Principles, June 2009;
http://erg.eu.int/doc/publications/erg_09_17_nga_economic_analysis_regulatory_principles_report_09_0603_v1.pdf

6.29 At this stage of planned roll out of NGA, next generation products, prices and hence demand has not materialised in the market. A full substitution analysis is premature. Although there are merits in mandating VUA in either Market 4 or Market 5, our view, based on the information available, is that the VUA product appears to have features which can reproduce benefits of unbundling but considering the advice and aims of the NGA Recommendation, VUA does not align with the full technical independence of fibre unbundling. The NGA Recommendation Recital (27) makes a subtle distinction in terms of the type of access delivered by Market 4 and Market 5 and the regulatory outcome which could be facilitated:

“Alternative operators, some of whom have already deployed their own networks to connect to the unbundled copper loop of the SMP operator, need to be provided with appropriate access products in order to continue to compete in an NGA context. For FTTH these may consist of access to civil engineering infrastructure, to the terminating segment, to the unbundled fibre loop (including dark fibre) or of wholesale broadband access, as the case may be.”⁸⁰

6.30 The Recital goes on to distinguish the potential regulatory outcome which could reward the SMP operator and access seeker for investments made:

“Where remedies imposed on Market 4 lead to effective competition in the corresponding downstream market, in the whole market or in certain geographic areas, other remedies could be withdrawn in the market or areas concerned. Such withdrawal would be indicated, for instance, if the successful imposition of physical access remedies were to render additional bitstream remedies redundant. Moreover, in exceptional circumstances, NRAs could refrain from imposing unbundled access to the fibre loop in geographic areas where the presence of several alternative infrastructures, such as FTTH networks and/or cable, in combination with competitive access offers on the basis of unbundling, is likely to result in effective competition on the downstream level.”

6.31 The NGA Recommendation allows for the fact that alternative forms of access could potentially be seen as a transitional solution to full unbundling in Recital 2, however it describes the conditions under which this is acceptable *“....provided that these are accompanied by the most appropriate safeguards to ensuring equivalence of access and effective competition.”*

⁸⁰ Recital (27) of the NGA Recommendation.

- 6.32 Mandating VUA as a remedy for Market 5 has implications for the form of regulation which ensures its practical implementation. Moreover, it may make future deregulation within Market 5 more complex, where VUA is successful and the competitive environment intensifies.
- 6.33 Taking all of these factors into account, ComReg is of the view that for the initial roll out phase of NGA investment, VUA is akin to WBA and should be mandated in Market 5, however this will be kept under review and we invite industry views on this proposal.
- 6.34 Furthermore, it could be envisaged that as NGA roll out is realised, technology improvements augment and demand for VUA materialises; the dynamic of demand and supply side substitution will become clearer. Depending on the competitive dynamic and any potential competition problems in an NGA environment, appropriate levels of regulation should be used to take account for differing conditions of competition that evolve over the NGA footprint areas. This would be examined through future market analyses.

6.2.6 Multicast Service for WBA

- 6.35 An important feature which allows the efficient delivery of video over IP networks is that of multicast. Faster (higher speed) networks with better performance characteristics (less delay, jitter and packet loss) means that these networks can offer quality video services into the home. The use of regulated broadband networks for the distribution of broadcast quality TV, Video on Demand and other video services is becoming a commercial imperative for network operators, in particular where there is a cable presence. It is important that the multicast feature forms part of any NGA WBA product; the multicast feature is a non-replicable feature and capability which will form an important dimension to the retail product offering of Eircom and others.
- 6.36 On that basis it will need to be offered on a comparable and equivalent basis as part of the wholesale offering to operators. The unavailability of a multicast service could hamper any alternative operator from competing in the retail market. Activation of the multicast feature alone, to allow OAOs to just pass multicast traffic, is not considered to be sufficient. This would further require an operator to have to implement its own multicast scheme or to transmit multiple copies of an identical data-stream through the Eircom network, which is an inefficient use of network resources, network capacity in particular. By Eircom offering to implement the multicast scheme on its network on behalf of the operator, this inefficiency can be eliminated. Eircom has offered a full multicast service on a wholesale basis as part of its suite of active NGA pilot products which it now intends to extend to its NGA rollout products (NGA Bitstream Plus and VUA).

6.37 Recital 34 of the NGA Recommendation provides that:

“it is expected that wholesale broadband access products based on fibre may be technically configured in ways that allow for more flexibility and enhanced service characteristics compared to copper-based bitstream products. To foster retail product competition it is important that such different service characteristics are reflected in various regulated NGA-based products, including business grade services.”

6.38 The multicast service feature can be described as an enhanced service characteristic which would be important for operators competing in the retail market. Many NRAs in Europe have mandated this feature, to be incorporated as a specific service on regulated NGA networks. One respondent to the preliminary consultation believed that multicast functionality should be specifically mandated as Eircom offered it as part of the NGA Pilot and it would form part of the WBA product offerings.

6.39 Given the commercial and competitive importance of this product feature, it is proportionate to ensure that Eircom will have an obligation to provide access to a multicast service.

ComReg's preliminary conclusions:

6.40 "NGA Bitstream" will be mandated as a product under Market 5 to allow high speed bitstream connectivity via the FTTH and FTTC access technologies.

6.41 VUA will be mandated as a product under Market 5 as its technical functionality reflects an active access product, though pricing and demand and supply conditions are not yet established. The enhanced bitstream product should possess the following characteristics:

- Ethernet Interface; ubiquitous and allows Layer 2 delivery of data-streams;
- Flexible CPE; allows OAO to deploy its own CPE though this is still in development in the GPON environment;
- QoS enabled; allows OAO to deploy its own QoS scheme;
- Bandwidth control possible; allows OAO to design its own upstream and downstream speeds;
- Flexible Interconnection; allow OAO to interconnect at various points in the network;
- Multicast enabled; as previously outlined, to facilitate the efficient distribution of IPTV.

6.42 Eircom will be obliged to provide exchange co-location to enable access to VUA.

6.43 Eircom will be obliged to provide a full multicast service for WBA.

Q. 10 Do you agree with ComReg's preliminary conclusions in relation to its understanding and assessment of Market 5 obligations? Do you consider that we have considered the necessary access products for Market 5 for NGA. Please provide reasons for your response and approach.

6.3 Backhaul provision for WBA

6.44 Similar to the WPNIA market, the provision of backhaul is considered to be an important facility to enable the provision of next generation WBA products and services. It is required in order to ensure interoperability between networks, to ensure service provisioning and to enable connectivity to the Eircom network for WBA services. It is a key feature of Bitstream products and is offered by Eircom as part of the current services it offers.

6.45 The VUA product proposed by Eircom is designed such that an operator can use its own network to interconnect at any NGN enabled exchange, as distinct from the NGA Bitstream Plus where Eircom provides backhaul. However, we note that the VUA product proposed provides only for interconnection at the exchange however we are of the view that an OAO should be capable of backhauling traffic delivered over the VUA service from the exchange to a nominated point of handover, if required. We note also that one of the characteristics of the "VULA" product allows this flexible form of interconnection therefore, in addition to local hand-off, backhaul should be mandated for the VUA service.

6.46 In the case of WBA services, as identified in ComReg Decision No. D06/11⁸¹, backhaul is integral to delivering a bitstream service and is offered by Eircom as part of WBA services. It is considered to be proportionate to mandate a backhaul service or facility. In the case of WBA services, Eircom has stated that it intends to supply backhaul for its NGA Bitstream Products using its Wholesale Ethernet Interconnection Link ("WEIL") products and variants (Customer Sited handover CSH, In-Span Handover ISH and In-Building handover IBH)⁸².

⁸¹ ComReg Document 11/49, Market Review: Wholesale Broadband Access, Response to Consultation and Decision, Decision No. D06/11, 08 July 2011.

⁸² CSH, ISH and IBH are existing forms of interconnection as described in the current WEIL product description.

6.47 ComReg intends to mandate this facility i.e. that Eircom provides Ethernet handover (WEIL) at local and national level, respectively, for its NGA active products i.e. "VUA" (Virtual Unbundled Access) and "NGA Bitstream Plus".

ComReg's preliminary conclusions:

6.48 Eircom will have an obligation to provide backhaul to enable the provision of next generation WBA products and services. The obligation will also require Eircom to provide a backhaul facility with Customer Sited Handover, In-span and In-building variants.

Q. 11 Do you agree with ComReg's conclusion on the provision of backhaul services and facilities for WBA? Please provide reasons for your response.

Chapter 7

7 Conditions of access common to the WPNIA and WBA markets

Overview

- 7.1 This section discusses overarching remedies which apply to WPNIA and WBA. These obligations govern the terms and conditions under which Eircom must provide access to alternative operators. There are certain standards in the provision of access which facilitate and support the provision of access on a fair and equal basis and are common to the provisions for WPNIA and WBA. These standards provide clarity to industry and ComReg and ensure that Eircom is meeting its obligations in the supply of access to NGA wholesale access products.
- 7.2 The main points in this section are set out under the following headings:
- Obligation to negotiate in good faith
 - Obligation not to withdraw access to services and facilities already granted
 - Access to technical interfaces and protocols and to Eircom's OSS
 - Conditions attached to the access obligation
 - Obligation to grant access in a fair, reasonable and timely manner
 - Migrations

7.1 Obligation to negotiate in good faith

- 7.3 In line with Regulation 12 (2) (b) of the Access Regulations and mandated in the ComReg Decision D05/10⁸³ on WPNIA and ComReg Decision D06/11 on the WBA⁸⁴, Eircom has an obligation to ensure that in terms of its dealings with Access Seekers, Eircom negotiates in good faith with access seekers for both WPNIA and WBA access products. The market analysis identified that a competition problem could emerge whereby the SMP operator expressly or constructively refuses to supply a service to an access seeker. To ensure that this does not emerge ComReg proposes the same standard should be set for next generation services to ensure efficient access.

ComReg's preliminary conclusions:

- 7.4 ComReg is of the view that the obligation to negotiate in good faith applies to current and next generation WPNIA and WBA, equally.

7.2 Obligation not to withdraw access to services and facilities already granted

- 7.5 In line with Regulation 12 (2) of the Access Regulations and mandated in the ComReg Decision D05/10⁸⁵ on WPNIA and ComReg Decision D06/11 on the WBA⁸⁶, Eircom has an obligation not to withdraw access to services and facilities already granted without prior approval of ComReg.
- 7.6 The transition from a copper to a fibre network will be challenging in terms of ensuring equality of access through a transitional period where the strategic objectives of operators may not be aligned. Any investor in next generation access will need to ensure that there is demand for wholesale access and will not want to encounter the cost of operating dual networks. At a certain point in time, facilities on the copper network may be withdrawn or retired and wholesale customers may be required to migrate to the fibre network.

⁸³ ComReg Document 10/39, Market Review: Wholesale (Physical) Network Infrastructure Access, Response to Consultation and Decision, Decision No. D05/10, 20 May 2010.

⁸⁴ ComReg Document 11/49, Market Review: Wholesale Broadband Access, Response to Consultation and Decision, Decision No. D06/11, 8 July 2011.

⁸⁵ ComReg Document 10/39, Market Review: Wholesale (Physical) Network Infrastructure Access, Response to Consultation and Decision, Decision No. D05/10, 20 May 2010.

⁸⁶ ComReg Document 11/49, Market Review: Wholesale Broadband Access, Response to Consultation and Decision, Decision No. D06/11, 8 July 2011.

7.7 In the NGA context, this was specifically addressed in the European Commission NGA Recommendation and therefore dealt with at length in the First NGA Consultation. The NGA Recommendation stipulates that existing SMP obligations should remain and cannot be unravelled by changes to network architecture. A smooth and appropriate process needs to be put in place to facilitate the shift to the new network architecture.

7.8 The shift to NGA brings with it new challenges arising from the transition from current generation WPNIA and WBA products to next generation WPNIA and WBA products. In this regard, the NGA Recommendation states that in the absence of an appropriate migration path:

“NRAs should ensure that alternative operators are informed no less than 5 years, where appropriate taking into account national circumstances, before de-commissioning of points of interconnection such as the local loop exchange. This period may be less than 5 years if fully equivalent access is provided at the point of interconnection”⁸⁷.

7.9 The NGA Recommendation further explains the aims of this policy in the supporting recital:

“Operators currently enjoying access, have a legitimate interest to have an appropriate time to prepare for the changes that substantially affect their investments and their business case. In the absence of a commercial agreement NRAs should ensure that there is an appropriate migration path put in place. Such migration path should be transparent and developed at the necessary level of detail so that operators currently enjoying access can prepare for the changes, including rules for any necessary joint work by access seekers and the SMP operator as well as for the precise modalities of de-commissioning points of interconnection. Existing SMP obligations should be maintained for an appropriate transitional period. This transitional period should be aligned with the standard investment period for the unbundling of a local loop or local sub-loop which is in general 5 years. In case the SMP operator provides equivalent access at the MDF, the NRA may decide to set a shorter period”⁸⁸.

⁸⁷ Article 39, Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (2010/572/EU).

⁸⁸ Recital 40 of the NGA Recommendation.

- 7.10 Moreover, network operators, whether it be the incumbent or an access seeker, need to be able to plan network alterations, network build or product purchase, based on the availability of wholesale services. Withdrawal of facilities on the copper network will influence wholesale demand and network management. In the case of the WPNIA market, any withdrawal of facilities effectively means that the product itself is being withdrawn and may impact on the provision of services to access seekers for both WPNIA and WBA products.
- 7.11 Of particular concern to access seekers will be the closure of an MDF and thereby the removal of the entire associated copper facility. That said, the NGA Recommendation advises that NRAs should put in place a transparent framework for the move from copper to NGA networks. This suggests that as long as there is an adequate provision of facilities and services and operators are given sufficient notification then there should be no hindrance to the SMP operator signalling the de-commissioning of a point of interconnection such as an exchange. The NGA Recommendation proposes that five years or less could be an appropriate notification period, *if fully equivalent access is provided at the point of interconnection*. This mirrors the obligations outlined for current generation WPNIA and WBA and the same time period is proposed within the context of next generation WPNIA and WBA, unless otherwise sanctioned by ComReg.
- 7.12 The general view of many operators on this issue was that the notice period should be in line with the NGA Recommendation, where it is suggested that it should be a minimum of 5 years unless a commercial settlement can be agreed. While supporting that agreement amongst affected industry players was the preferred option, Eircom has accepted the principle that permission from ComReg would be required for any closure. It also suggested scenarios where the period should be shortened. The regulatory options include assessing the regulatory asset lives of the Eircom network, which has been established as eight years. It is reasonable to assume that an operator that has invested in expanding its network should have a period where it recoups its investment. We recognise that if Eircom were to invest significant resources in an NGA network, it cannot be expected to maintain dual networks for an unreasonable period of time and absorb the associated costs of such inefficiencies as this would undermine the goals of the NGA Recommendation.
- 7.13 The change over between the two networks was considered in the WPNIA Decision⁸⁹ as follows:

⁸⁹ ComReg Document 10/39, Market Review: Wholesale (Physical) Network Infrastructure Access, Response to Consultation and Decision, Decision No. D05/10, 20 May 2010.

“7.49 ComReg proposed that Eircom should have, as part of its Access obligation, an obligation not to withdraw or reduce access to facilities already granted, except where this has been approved by ComReg. This relates to all aspects of the WPNIA Product life cycle. It was proposed that no Eircom exchange or exchange dimension/footprint or access to exchange or exchange dimension/footprint, normally consumed as part of the WPNIA product set, may be removed or have its access diminished with less than 5 years notice, except where this withdrawal and associated timescales had been approved by ComReg.”

- 7.14 ComReg considers that it is legitimate and reasonable for the operator taking the risk of investing in the rollout of NGA not to be required to maintain the cost of running two networks for an unreasonable period of time. It could be considered to be economically unfeasible and undermining of the financial stability of the network provider. On the other hand, wholesale operators will need adequate notice of withdrawal of current generation facilities, particularly in order for them to plan alternative access products and any complementary network build that they may need in order to take up next generation products. It would appear from what is outlined in the NGA Recommendation, and the views from industry, that a notice period of five years would be considered reasonable and prior notice and approval by ComReg would be a pre-requisite.
- 7.15 The provision to curtail this notice period is outlined by the NGA Recommendation⁹⁰ where equivalent access is provided at the MDF and this option should be made available to the SMP operator, where those conditions are fulfilled.

ComReg's preliminary conclusions:

- 7.16 ComReg takes the view that a period of five years prior notification of the closure of an MDF should be considered as appropriate and proportionate. Additionally, we would need to consider the merits and provision of equivalent access when considering the withdrawal of MDF facilities and services. This “equivalent access” could for instance be based on a “virtual” product, or a fibre unbundling offer. New or innovative products may be developed and offered as a result of a future “reasonable request” or some other evolutionary product. Such developments would be considered should this situation arise. ComReg believes that such an approach is in line with the NGA Recommendation.

⁹⁰ Article 40 of the NGA Recommendation.

- 7.17 More generally, withdrawal by Eircom of access to facilities already granted in the WBA and WPNIA markets remains subject to the prior approval of ComReg. A particular case involving SLU and the impact of vectoring is discussed in Section 5.

7.3 Access to technical interfaces, protocols and access to Eircom's Operational Support Systems (OSS)

- 7.18 In line with Regulation 12 (2) (e) and Regulation 12 (2) (h) of the Access Regulation and mandated through the ComReg Decision No. D05/10 and ComReg Decision No. D06/11; Eircom has an obligation to continue to grant open access to technical interfaces, protocols or other key technologies.
- 7.19 Additionally, Eircom must grant access to OSS that is necessary to ensure fair competition in the provision of services. It was explained in the WPNIA and WBA Market Reviews that for current generation WPNIA and WBA services, there is a difference in the manner of access to OSS used by OAOs and that used by Eircom. OAOs have access to Eircom's OSS through a Universal Gateway ("UG").
- 7.20 Many of Eircom's IT systems were designed to service a vertically integrated organisation at a time when there may not have been a requirement to facilitate third party access. Eircom has since developed a mode of access for OAOs through the UG, a mediation broker used to interrogate numerous existing backend systems. ComReg has accepted this practice on the basis that it would be prohibitively costly to re-engineer systems in order to offer exactly the same mode of access to all operators, i.e. OAOs and Eircom retail.
- 7.21 Notwithstanding this, Eircom's obligations for current generation WPNIA and WBA require that even though it is providing different IT interfaces and modes of access for OAOs and Eircom's downstream arm, it does so in a manner which is compliant with existing non-discrimination (and other) obligations, that is, that Eircom provides services and information to OAOs under the same conditions and of the same quality as Eircom provides for its own services.
- 7.22 The WPNIA Decision clarified that any new system development to support new services should be implemented in a way that ensures both OAOs and Eircom's retail arm have the same mode and quality of access to OSS and associated facilities. This applies to the access interface, the service and information available, and the quality, standard and timeliness of the access being provided in so far as these relate to OSS inputs supplied by Eircom to OAOs.

- 7.23 Therefore, Eircom must ensure that any of its future IT developments evolve such that both Eircom's downstream arms and OAOs have the ability to access OSS in exactly the same manner.
- 7.24 ComReg has further stated that differences “would not be appropriate where new IT systems and facilities are being developed to support new services and, in such circumstances, it would consider it appropriate that future IT development takes place in a manner which results in both OAOs and Eircom’s retail arm having the same mode and quality of access to OSS and associated facilities (in terms of the access interface itself, the services and information available, and the quality, standard and timeliness of the access being provided).”
- 7.25 Access to technical interfaces, protocols and access to Eircom’s Operational Support Systems (OSS) is discussed further in Section 8 of this paper which deals with Eircom’s non-discrimination obligation.

ComReg's preliminary conclusions:

- 7.26 Therefore, we propose that Eircom must ensure that any future IT developments evolve such that both Eircom's down-stream arms and OAOs access OSS in exactly the same manner. This should be provided in accordance with the principle of “Equivalence of Inputs”.

7.4 Conditions attached to the access obligation

- 7.27 Pursuant to Regulation 12 (3) of the Access Regulation, there are certain standards in the provision of access which facilitate and support the provision of access on a fair, reasonable and timely basis. These standards provide clarity to industry and ComReg and ensure that Eircom is meeting its obligations for non-discrimination and transparency.

7.4.1 Obligation to grant access in a fair, reasonable and timely manner

- 7.28 Regulation 12 (3) of the Access Regulations empowers ComReg to attach to relevant access obligations conditions covering fairness, reasonableness and timeliness. In the case of WPNIA and WBA services and facilities ComReg requires Eircom to ensure that the terms and conditions for access are governed by a Service Level Agreement (“SLA”).

- 7.29 Eircom has an obligation to conclude, maintain or update, as appropriate, Service Level Agreements for the supply of WBA and WPNIA services. In terms of delivering NGA services ComReg's position remains the same and Eircom should have the same obligations in terms of SLAs for the delivery of next generation WPNIA and WBA to OAOs. Such SLAs should include an obligation to pay service credits where agreed targets are missed. Performance Metrics should be published to demonstrate aggregate performance by Eircom against the SLA targets.
- 7.30 ComReg also notes, however, that the reliable provision of next generation services demands the availability of wholesale inputs of greater complexity than those required for the provision of current generation services. In offering next generation services, operators will require assurances regarding the performance of a range of parameters and characteristics of NGA wholesale products. The monitoring and recognition of service degradation leading to the initiation of service assurance processes has added challenges and complexities for next generation services.
- 7.31 ComReg is of the view that it is particularly relevant and important that SLAs and associated performance metrics take appropriate account of the complexity of the wholesale inputs required for products that may be developed in an NGA environment. In particular the SLAs associated with NG wholesale products should be of a standard such that they support the provision of mass market high quality NG services.

ComReg's preliminary conclusions:

- 7.32 ComReg maintains that conditions should be attached to the access obligations for next generation WPNIA and WBA to ensure that Eircom provides access in a manner which is fair, reasonable and timely.
- 7.33 In addition to this obligation, ComReg maintains that Eircom should ensure, as part of its access obligation, that its provision of access shall be supported by Service Level Agreements.
- 7.34 ComReg is making specific provision that Eircom should be obliged to negotiate in good faith with OAOs requesting access, including in relation to the conclusion of legally binding and fit-for-purpose SLAs.

Q. 12 Do you agree with ComReg's preliminary conclusions, as set out above, on the terms and conditions of the access obligation which are common to WPNIA and WBA? Please provide reasons for your response.

7.5 Migrations

- 7.35 The importance of a fully functioning migrations process cannot be overstated as it is a critical process, key to an operator successfully gaining a new customer and therefore paramount to the commercial performance of an access seeker. The migrations processes associated with current generation LLU have been characterised by particular difficulties.
- 7.36 Article 40 of the NGA Recommendation provides that appropriate migration paths are put in place to ensure that smooth switching between current generation and next generation service providers and expressly states that:
- “NRAs should put in place a transparent framework for the migration from copper to fibre-based networks. NRAs should ensure that the systems and procedures put in place by the SMP operator, including operating support systems, are designed so as to facilitate the switching of alternative providers to NGA-based access products”.*
- 7.37 The facility for wholesale customers to migrate efficiently and without hindrance across and between specific current generation regulated products which are in different designated markets has been mandated in the WBA Market Review ComReg Decision D06/11 and in the WPNIA Market Review ComReg Decision D05/10. Similarly we are of the view that the ability to migrate seamlessly and efficiently between wholesale current and next generation, in both directions, including inter and intra WPNIA and WBA is a characteristic of all wholesale products, including next generation wholesale products.
- 7.38 Where NGA is deployed, to ensure take up, there will be an increased need for seamless migration processes. We believe that this will require measures which ensure a broad range of inter migration paths i.e. to (and from) next generation WPNIA / WBA from (and to) other market products; and, similarly, intra migration paths i.e. to and from NG WPNIA / WBA. For clarity inter and intra migration paths relate to switching within and between current generation and next generation products.
- 7.39 For example, in a NGA scenario a wholesale customer could have a legacy voice service (WLR) and a next generation bitstream or broadband service and use them to offer downstream services to an end-user. The wholesale customer should be allowed to transfer to a legacy LLU service and OAO or Eircom provided VoIP service, or vice-versa, or indeed any other combination, including to and from services provided on any other operator’s infrastructure.

- 7.40 In the responses to the preliminary consultation, some respondents noted that the initial delay, in the delivery of robust migration processes in LLU, had considerably retarded competition. Therefore, pricing and processes which facilitate the ability to seamlessly migrate between wholesale products need to be mandated in the interest of competition.

ComReg's preliminary conclusions:

Eircom will have an obligation to provide an intra and inter migration facility across and between regulated current generation and next generation products and services in Market 4 and Market 5. This obligation will also include migrations between alternate infrastructures and will provide a corresponding "bulk migration" facility.

Q. 13 Do you agree with ComReg's preliminary conclusions, as set out above, in relation to the terms and conditions of the access obligation including a fully functioning migrations process, in the WBA market (Market 5) and WPNIA market (Market 4)? Please provide reasons for your response.

Chapter 8

8 Obligation of non-discrimination in the WPNIA and WBA markets

Overview:

- 8.1 The application of an ex-ante non-discrimination obligation seeks to prevent a dominant, vertically-integrated operator from engaging in discriminatory behaviour which would hinder competitive dynamics.
- 8.2 The WPNIA Decision and the WBA Decision imposed an obligation of non-discrimination for current and next generation WPNIA and WBA respectively which specified that Eircom shall:
 - (i) Apply equivalent conditions in equivalent circumstances to other undertakings providing equivalent services; and
 - (ii) Ensure that all services and information are provided to other undertakings under the same conditions and of the same quality that Eircom provides for its own services or those of its subsidiaries or partners.
- 8.3 As part of this consultation, ComReg is proposing to further specify the non-discrimination obligation with regard to the provision of next generation WPNIA and WBA services and facilities and to establish the appropriate application of the non-discrimination, given the particular competition problems typically found in these markets. Our analysis takes into consideration a number of factors and these are explained below.

8.1 European developments and respondents views

- 8.4 Given the importance of this obligation in facilitating efficient and effective access, we seek to provide clarity on the standard and implementation of the non-discrimination obligation. In our consideration to further specify the obligation of non-discrimination, we take the utmost account of:-
 - a) the competition problems identified in Section 3 of the consultation paper;

- b) submissions received from Eircom and Industry in respect of previous consultations (i.e. the First NGA Consultation⁹¹ and earlier consultations relating to the WPNIA Decision, the WBA Decision as well as ComReg's consultation on key performance indicators (the "KPI Decision"⁹²);
- c) the Commission Recommendation on regulated access to Next Generation Access Networks (the "NGA Recommendation"⁹³);
- d) the Commission's consultation on the application of a non-discrimination obligation under Article 10 of the Access Directive (the Non-Discrimination Consultation) and associated responses;
- e) the BEREC consultation on the high level principles on non-discrimination (the "BEREC Non Discrimination Consultation"⁹⁴) and
- f) the comments letters issued by the European Commission in its review of regulatory measures notified by Member States under the Community consultation mechanism for electronic communications services (the "Comments Letters").

a. Competition Problems

8.5 The competition problems set out in Section 3 show that where there is SMP the potential for foreclosure, price discrimination and non-price discrimination to occur. Specific problems have been evident in the supply of LLU over recent years. Though mechanisms were available for assisting and enabling wholesale product development, including twice monthly product development forums attended by all operators, the development of the LLU product set, was marked by significant delays in getting even minor improvements to the product set.

⁹¹ Document 11/40 Next Generation Access (NGA) Remedies in Wholesale Regulated Markets, 26th May 2011.

⁹² ComReg Document No. 11/46 entitled "Response to Consultation and Decision on the Introduction of Key Performance Indicators for Regulated Markets". Decision 05/11. (the "KPI Decision").

⁹³ European Commission, "Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA)", Brussels, C(2010) 6223.

⁹⁴ BEREC's Review of the Common Positions on wholesale unbundled access, wholesale broadband access and wholesale leased lines. Stage 1 High Level Principles on issues of non-discrimination dated 1 March 2012.

- 8.6 OAOs have complained about inefficiencies in standard processes such as bulk migrations, which have hindered them moving up the value chain. Considerable levels of intervention and oversight has been required by ComReg in order to assist in the resolution of these difficulties and OAOs complained to ComReg that the inefficiencies in the migrations process and the length of time and effort required to resolve process problems and operational issues were having an impact on their ability to compete.

b. Responses to First NGA Consultation

- 8.7 Non-price discrimination has characterised the supply of wholesale access products over recent years and respondents to the First NGA Consultation referred to such experiences.
- 8.8 In its response to the First NGA Consultation Vodafone highlighted that the non-discrimination obligation should ensure the principles of:
- Equal access to information;
 - Equivalent ordering and information systems; and
 - Service level agreements (“SLAs”) and associated targets.
- 8.9 Vodafone held the view that to ensure equality of access, sufficient information needs to be provided in terms of, amongst others:- (i) products; (ii) product development; (iii) customer information; (iii) technical standards; (iv) interfaces; and (v) product performance. Vodafone considered that the relevant services should be provided on the basis of equivalence of inputs. It was its view that measures such as SLAs and KPIs assist transparency and therefore the delivery of equivalence. Vodafone suggested that these standards should be applied to all wholesale products including civil engineering infrastructure and terminating segments.
- 8.10 ComReg has taken into account the submissions of Access Seekers, which are based on past experience or in anticipation of possible future scenarios. Feedback from OAOs is for a greater level of equivalence than that which is being currently provided by Eircom, and this is justified by them on the need to create a level playing field in terms of the access provided by Eircom to Access Seekers and its self-supplied access.

c. NGA Recommendation

8.11 The European Commission recommends the use of a stringent non-discrimination obligation in respect of access to civil engineering infrastructure and terminating segments. Indeed, the NGA Recommendation explains in Annex II of the Recommendation that to create a level playing field among new entrants and the SMP operator, access should be provided on a “strictly equivalent basis”. This policy has been taken a step further and the European Commission has issued a consultation on the use of the non-discrimination obligation. This is considered in further detail below.

d. Non-Discrimination Consultation

8.12 The European Commission’s Non-Discrimination Consultation is aimed at reinforcing the effectiveness of the NGA Recommendation and at ensuring greater consistency between Member States in their application of non-discrimination obligations.

8.13 The Non-Discrimination Consultation draws attention to the fact that national regulators have recognised the importance non-discrimination through the Common Position by the European Regulators Group (ERG) on *ex ante* remedies⁹⁵. Across Member States dominant operators continue to operate in a discriminatory manner, even in the presence of regulation. NRAs have focused on tackling price discrimination however the impact of non-price discrimination can be just as harmful. The Commission explains:

*“When addressing discriminatory behaviour by dominant operators, national regulators have, initially, focussed their main attention on tackling price discrimination (e.g. possible margin squeezes). However, cases of non-price discriminatory behaviour (e.g. quality discrimination, access to information, delaying tactics, undue requirements, strategic design of product characteristics etc.) are often more numerous and can be equally, if not even more severe.”*⁹⁶

⁹⁵ Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework; ERG (06) 33 and Report on ERG Best Practices on regulatory regimes in wholesale unbundled access and Bitstream access; ERG (07) 53. Please note that BEREC is currently working on up-dating these Common Positions. No date for completion of this work has yet been announced.

⁴ See. For example the cases notified under the following numbers: IE/2011/1185.

⁹⁶ Part II.2, Page 2 of the Non-Discrimination Consultation.

- 8.14 For this reason, the European Commission is considering the meaning and application of this measure. The experience in the Irish market points to the ability of Eircom to act in a discriminatory way in its supply of wholesale products and services. To tackle this issue, ComReg recently issued the KPI Decision⁹⁷, which will provide a basis for measuring Eircom's performance in this regard.
- 8.15 In its consultation the Commission has noted:
- “As to the need to ensure strict equivalence of access we note that the discussion between national regulators has been marked by a comparison of the concepts of Equivalence of Output and Equivalence of Input.”⁹⁸*
- 8.16 ComReg supports this differentiation between Equivalence of Output (EoO) and Equivalence of Input (“Eoi”) which is considered below.

e. BEREC Non Discrimination Consultation

- 8.17 On 1 March 2012 the Body of European Regulatory (“BEREC”) issued a consultation on high level principles on issues of non-discrimination. The consultation focuses on principles relating to the creation of a level playing field; the timely availability of wholesale access products; the provision of access products of reasonable quality; and the provision of efficient wholesale switching processes.
- 8.18 The consultation paper states that to ensure competition, there needs to be reasonable certainty that new and existing operators are able to compete on a level playing field and to do this, it is necessary⁹⁹:
- a. to ensure that the SMP player does not have an unfair unmatchable advantage;
 - b. to prohibit the SMP player from discriminating in favour of its own downstream businesses or between third party providers, either on price or non-price issues;
 - c. to provide an effective deterrent to obstructive and foot-dragging behaviour; and
 - d. to ensure that the policies adopted by the SMP player towards the commissioning of new infrastructure which may be necessary for the provision of new retail services, allows all market players the same opportunity to compete for the new business.

- 8.19 In this context BEREC has identified the following objectives¹⁰⁰:

⁹⁷ ComReg Decision D05/11.

⁹⁸ Part III.2, page 5 of the Non-Discrimination Consultation.

⁹⁹ See section 3.4 of BEREC Non Discrimination Consultation, page 11.

¹⁰⁰ See Table 1 BEREC high level principles for issues relating to non-discrimination contained in BEREC Non Discrimination Consultation Page 12.

- i. A level playing field.
 - ii. Avoidance of unjustified first mover advantage.
 - iii. Reasonable quality of access products.
 - iv. Assurance of efficient and convenient switching process.
- 8.20 To achieve these objectives BEREC has proposed a number of high-level principles that NRAs should adopt to increase ex ante compliance in the non-discrimination obligation. ComReg has taken these principles in determining the scope of the non-discrimination obligations for next generation WPNIA and WBA services and facilities.

f. Comments Letters

- 8.21 In its Article 7 letters, the European Commission has encouraged NRAs to ensure that sufficient remedies are in place to address competition problems in NGA-based WBA services. For example, in its comments on the analysis of the WPNIA and WBA markets by the Portuguese Regulator (Anacom) the Commission noted that fibre roll-outs may significantly change the competitive landscape, especially if main distribution frames (“MDF”s) will be closed down, and invited Anacom to impose remedies on fibre access products as appropriate following national consultation¹⁰¹. Furthermore, in its comments on cases involving the WPNIA market, the Commission has invited NRAs to ensure that, in the event of any replacement of the existing copper access network with fibre, existing customers receive all necessary information (concerning any network modification plans) in a timely fashion so as to be in a position to adjust their own network plans accordingly¹⁰².
- 8.22 Non-discrimination under the WPNIA Decision and WBA DecisionAs set out in the WPNIA Decision and WBA Decision, it was our view that Eircom’s SMP will prevail across current generation and next generation network infrastructure and the advent of NGA should not be allowed to reinforce monopoly conditions over the access network. It was considered that the conditions of competition were not expected to change appreciably where Eircom overlays or replicates its existing access network with fibre and NGA equipment. ComReg is of the view that an obligation not to discriminate is appropriate in these markets.

¹⁰¹ Case PT/2008/0851.

¹⁰² Case EE/2009/0942-0943.

- 8.23 These Decisions recognised that there may be commercial sensitivity surrounding the provision of certain information and services to all undertakings. It was therefore proposed that it was reasonable to restrict the obligation regarding non-discrimination to the provision of services and information to Access Seekers¹⁰³.
- 8.24 The launch of NGA services will be particularly significant, not just because of the nature of the new services, but also due to the number of new wholesale inputs which will be made available at the same time. To ensure that Access Seekers are in an equivalent position to Eircom and/or its partners, regarding NGA development, we considered it essential that information and services are provided in sufficient time.
- 8.25 Due to the importance of access to operational support system (“OSS”) to an Access Seeker’s ability to compete effectively, we proposed a specific non-discrimination obligation in respect of access to OSS for current generation services and facilities. Eircom is obliged to ensure that Access Seekers are in a position to experience the same standard and quality of service and information, as Eircom provides internally.
- 8.26 This means, for example, that the time taken to process requests via the OSS and the quality and completeness of output from the OSS should be the same, regardless of whether the request comes from an Access Seeker or from Eircom’s own operations or partners in so far as these are functions of inputs supplied by Eircom. ComReg now wishes to further specify this obligation.

¹⁰³ See paragraph 7.106 of the WPNIA Decision Instrument which states that “It should be noted that the above requirement is to provide WPNIA services or information to ‘Access Seekers’ rather than ‘OAOs’ where an Access Seeker is an OAO which has already agreed a Wholesale Broadband Access Reference Offer (WBARO) with Eircom, or has signed a Non-Disclosure Agreement with Eircom and paragraph 7.107 of the WBA Decision.

- 8.27 With respect to this issue ComReg maintains its position as stated previously that we “*would consider it appropriate that future IT development takes place in a manner which results in both OAOs and Eircom’s retail arm having the same mode and quality of access to OSS and associated facilities (in terms of the access interface itself, the services and information available, and the quality, standard and timeliness of the access being provided)*¹⁰⁴.” Furthermore, “*the onus is on Eircom to ensure that its future IT developments occur in a manner which are consistent with its non-discrimination (and other) obligations and, given that these obligations apply as that development is planned and implemented, it would be unreasonable for Eircom to seek to justify any differences in the types or levels of OSS access provided to OAOs on the basis that such differences had been accepted in the past in respect of Eircom’s legacy systems*¹⁰⁵.”
- 8.28 The move to a next generation network provides the possibility of upgrading or replacing some of the legacy systems and practices which were built to serve a vertically-integrated operator and which are not particularly suited to serving wholesale customers efficiently. Given that in the WPNIA Decision, we outlined that where an opportunity to develop new systems arises, then systems should be developed in a manner which is consistent with Eircom’s non-discrimination obligation, we consider it proportionate to ensure that systems are developed to meet the requirements of this non-discrimination obligation for NGA WPNIA and WBA.
- 8.29 ComReg is therefore encouraged by Eircom’s announcement on implementing equivalence of inputs for the provision of NGA services¹⁰⁶, and the change in systems delivery which was flagged in its presentation to industry on NGA rollout, in September 2011¹⁰⁷. This approach is consistent with Eircom’s planned Wholesale Reform process which was announced on 13 December 2011¹⁰⁸.

¹⁰⁴ “ComReg Decision No D05/10, ComReg Document No 10/39 - Response to consultation and decision “Market Review: Wholesale (Physical) Network Infrastructure Access (Market 4)”; 20 May 2010 - Paragraph 7.61.

¹⁰⁵ Ibid.

¹⁰⁶ See paper entitled “Discussion Document for Industry, Eircom Group, Proposed Programme of Voluntary Wholesale Reforms” dated 9 December 2011.

¹⁰⁷ See Industry briefing September 2011 – Programme overview Presentation and NGA Presentation - Questions and Answers. <http://www.nextgenerationnetwork.ie/ngn-access>.

¹⁰⁸ See paper entitled “Discussion Document for Industry, Eircom Group, Proposed Programme of Voluntary Wholesale Reforms” dated 9 December 2011.

8.2 Non Discrimination in an NGA context

8.30 Feedback from OAOs (by way of formal consultation and general interaction) is that while, in their opinion, the output product might be similar, if not the same, to that self-supplied by Eircom, the Access Seeker's experience of systems and processes may be inferior.

8.31 ComReg maintains the view that where the opportunity for the dominant operator to discriminate between the standard of wholesale services offered to its retail arm is mitigated, this not only diminishes the likelihood of discrimination occurring but could also provide greater transparency that it is compliant with its non-discrimination obligations.

8.32 We believe that the opportunity to discriminate would be significantly reduced if services were offered on an EoI basis. This has informed our view on systems access issues in previous consultations whereby, while we have accepted that for legacy systems OAO OSS interfaces can be different, the same should not apply to the development of new IT systems and facilities. In the WPNIA Decision we noted that ComReg:

*"...would consider it appropriate that future IT development takes place in a manner which results in both OAOs and Eircom's retail arm having the same mode and quality of access to OSS and associated facilities..."*¹⁰⁹

8.33 In the context of non-discrimination ComReg has consistently recognised that the primary concerns regarding end to end wholesale services consumed by Eircom Retail and OAOs have centred on differences in modes of access to OSS. Our view is that, aside from the issues relating to access to OSS, the processes underpinning wholesale services are largely the same and offer less opportunity to discriminate. The WPNIA Decision includes an extract from Eircom's response to ComReg's Doc 08/41 on the issue of the processes associated with Wholesale inputs, which supports this point:

*".....most processes associated with LLU/WPNIA are common to both OAOs and Eircom's retail operation, and so a similar quality would be experienced by both."*¹¹⁰

¹⁰⁹ Para. 7.61 of the WPNIA Decision.

¹¹⁰ Paragraph 7.59 of the WPNIA Decision.

- 8.34 A similar view informed our approach to the development of KPIs. In the KPI Decision¹¹¹ when discussing the principles upon which the KPIs were based, we drew attention to timing and process differences introduced by alternative OSS access modes. ComReg's consulted on its understanding that apart from these differences, the underlying operational processes supporting retail inputs and equivalent wholesale inputs, could be directly compared because they are essentially the same. Further curtailment of discriminatory opportunities would be realised by reducing differences in modes of access to OSS offered to OAOs and Eircom's downstream arms.
- 8.35 In recent documentation on Eircom's decision to reform its wholesale business unit, it has stated that it intends to provide Next Generation regulatory products through a form of equivalence of input delivered through the Unified Gateway (the "UG")¹¹². Eircom has further stated that it will implement a strategy which would result in its *"retail business systems interconnecting through the UG in the same way as other operators"*. This, Eircom states, *"represents the equivalence of inputs systems solution to which eircom has committed for the provision of NGA services"*.¹¹³
- 8.36 Eircom characterises this development as delivering a form of EoI for the provision of NGA services. Eircom's initiative in relation to systems access for NGA allied to the continuing use of common processes by both OAOs and Eircom Retail for NGA wholesale services provides an opportunity to implement a higher standard of equivalence and also allows all aspects of wholesale services i.e. both systems and processes from first touch to delivery or repair, to be considered from the perspective of EoI.
- 8.37 However, we are aware that during the transition to NGA, Eircom has stated that they will continue to rely on existing processes and that all existing systems will not be redeveloped; there may be situations where EoI is not applied and where EoO is more appropriate. However we are of the view that, for wholesale NGA services, where possible, and where the effort is not disproportionately burdensome, an EoI approach should be applied to the underlying systems and processes including in the context of the development of new systems and processes.
- 8.38 In this context ComReg considers it appropriate to further specify the obligation of non-discrimination with respect to the form of equivalence and considering the principle of equivalence whether, in the context of Next Generation WPNIA and WBA, Eircom should be obliged to provide Access on an EoO and EoI basis.

¹¹¹ ComReg Decision D05/11.

¹¹² See paper entitled "Discussion Document for Industry, Eircom Group, Proposed Programme of Voluntary Wholesale Reforms" dated 9 December 2011.

¹¹³ Ibid.

- 8.39 In the transition to NGA, given Eircom's wholesale reform program, it is appropriate, necessary and proportionate that all aspects of the next generation product life cycle, including systems and associated processes, shall also be provided on an Eol basis (subject to certain circumstances which are outlined below).

8.3 Standard of Equivalence - Equivalence of Input and Equivalence of Output

- 8.40 ComReg has defined the term Equivalence of Input ("Eol") and Equivalence of Output ("EoO") as follows:-

"Equivalence of Input" or "Eol" means that Eircom shall provide all services and information to all Access Seekers and internally on the same timescales, and on the same terms and conditions (including price and service levels) by means of the same systems and processes. In particular, it includes the use by Eircom of such systems and processes in the same way and with the same degree of reliability and performance when providing services and information to all Access Seekers and to itself".

"Equivalence of Output" or "EoO" means that Eircom shall provide all wholesale access products to Access Seekers in a manner which is comparable or identical to those it provides to itself in terms of functionality and price, albeit using potentially different systems and processes".

- 8.41 The term Eol is generally accepted and understood to mean that the vertically-integrated SMP operator consumes exactly the same upstream inputs as their wholesale customer, e.g. uses the same OSS interface, provisioning and service assurance processes, etc. The processes and OSS interfaces used by an Access Seeker during all stages of the product life cycle (i.e. from provisioning to in-life, service assurance and customer switching) should be exactly the same (subject to minor exceptions) as those used by Eircom's downstream arm.
- 8.42 The rollout of NGA by Eircom has coincided with an evolution in Eircom's approach to providing access to its systems. The development of NGA products will also require the development of some new processes; however NGA products will also use some existing processes. The development of an NGA product set affords an opportunity to ensure, where possible, that the processes, interfaces and supporting systems used by Access Seekers at various stages of the product life cycle are identical to the processes, interfaces and supporting systems used by Eircom's downstream arm. Therefore this presents an opportunity to deliver a higher standard of equivalence to wholesale customers.

- 8.43 We consider that there may be situations where the application of this higher level of equivalence may not be appropriate due to factors such as the cost of implementation. However, in coming to any determination on the appropriateness of EoO, we will take into consideration any potential negative impact on Access Seekers in not providing EoI. In these situations we may take the view that EoO is appropriate. For example, EoI may not apply to certain legacy systems and processes that are used to support NGA services. Therefore, ComReg proposes that this standard, i.e. EoI and EoO in certain situations, would apply to the entire product life cycle for all NGA products and services.
- 8.44 Where Eircom can demonstrate to ComReg that reasonable steps were taken to comply with the requirement to provide Next Generation WPNIA and WBA on an EoI basis or that it was not possible (for technical or other reasons) to comply with this requirement, EoO shall apply. For example we may take into account, *inter alia*, the design and incremental costs when considering representations from Eircom regarding the appropriateness of EoI in particular circumstances. However the burden shall be on Eircom to prove that this is the case.
- 8.45 The above definition of EoI requires Eircom to provide “the same” timescales, terms and conditions by means of “the same” systems and processes. In this context “the same” shall mean exactly the same unless those differences are immaterial or insignificant. Where there are any differences between the inputs provided by Eircom to Access Seekers and those provided internally, Eircom shall bring those differences to ComReg’s attention in writing.

8.4 Monitoring compliance of non-discrimination

- 8.46 The European Commission’s Non-Discrimination Consultation points out that the potential for non-price discrimination is present where a dominant operator is vertically-integrated¹¹⁴. Detecting non-price discrimination is challenging and NRAs and competing operators need to be able to comprehensively monitor the SMP operator’s behaviour to ensure that any non-discrimination obligation which has been imposed is working effectively.

¹¹⁴ Page 2 of the Non Discrimination Consultation.

- 8.47 During the period since the publication of the WPNIA Decision and WBA Decision, there have been a number of issues which have come to ComReg's attention with respect to regulated wholesale offerings in both markets that have raised concerns with Eircom's compliance with its non-discrimination obligations. Some of these issues have resulted in notifications to Eircom of non-compliance with its non-discrimination obligation¹¹⁵.
- 8.48 A significant number of the product related developments offered by Eircom or reflected in Statements of Requirements ("SOR"s) presented by operators relate to these concerns. This indicates therefore, that there were some issues which should have been addressed prior to product launch and some which may have only emerged as operators actively used the wholesale inputs to develop retail offerings for the marketplace.
- 8.49 Therefore, in order to enable monitoring of the non-discrimination obligations, ComReg is proposing to impose an obligation upon Eircom to notify ComReg in advance of:-
- (i) Offering a new next generation WPNIA and WBA service or facility; and
 - (ii) Amending an existing Next Generation WPNIA and WBA service or facility.
- 8.50 Notification in respect of a new service or facility shall take place seven months before that offer can be made available at the retail level. That is one month before it is published on Eircom's website. Where Eircom proposes to amend an existing next generation WPNIA or WBA service or facility it should be notified three months prior to the change been offered at the retail level and one month before publication. These timelines correspond to the notification requirements under the transparency obligations, set out in Section 9, which relate to changes to the WPNIA Access Reference Offer ("ARO") or the WBA Wholesale Broadband Access Reference Offer ("WBARO").

¹¹⁵ See the following documents which are on the ComReg website – "Notification to eircom of non-compliance by eircom with its non-discrimination obligation", ComReg Document No. 06/27 dated 23rd June 2006, "Notification to eircom of non-compliance by, eircom with its non-discrimination obligation", ComReg Document No. 07/44 dated 20 July 2007, "Decision to find that Eircom is not in compliance with the non-discrimination obligation in its use of "Sync Checker", ComReg Document No. 08/95 dated 4 December 2008, "Notification to Eircom of non-compliance by Eircom with its non-discrimination obligation in relation to service repair" ComReg Document No. 07/50, dated 30th July 2007, "ComReg notifies Eircom Limited of a finding of non-compliance", ComReg Document No. 10/93 dated 30 November 2010.

- 8.51 At the point of notification, Eircom shall provide to ComReg sufficient information to demonstrate that the new product or amendment is being provided on an EoI basis or where appropriate on an EoO basis. In such circumstances, Eircom must demonstrate that it has made a reasonable attempt to provide EoI and justify why EoI was unreasonable. Eircom must also demonstrate to ComReg that services and facilities are provided on an EoO basis. Similarly, where Eircom considers that EoI has effectively been provided, save for very minor or insignificant differences, Eircom must provide such information to ComReg. We propose this notification should be accompanied by the following information:
- a) Written confirmation and explanation as to how the next generation WPNIA or WBA service or facility has been provided on an EoI basis;
 - b) Where the Next Generation WPNIA or WBA service or facility has not been provided on an EoI basis, written confirmation and explanation as to how the service or facility has been provided on an EoO basis. Eircom will also demonstrate to ComReg that reasonable steps were taken to comply with the requirement to provide next generation WPNIA and WBA on an EoI basis or that it was not possible (for technical or other reasons) to comply with this requirement.
- 8.52 The information provided under (a) and (b) shall include all relevant terms and conditions, including documentation relating to the relevant processes. This information shall be kept updated by Eircom as new services or facilities are developed and deployed or existing services or facilities are amended.
- 8.53 While we recognise, that Eircom will have to provide an additional month's notification to ComReg we consider it important to review new products or specifications in advance of such changes being offered to Access Seekers so that a fit-for-purpose service or facility may be offered. The advance notification will assist us in monitoring Eircom's compliance with its non-discrimination obligations. It is on this basis that we consider it justified and proportionate that Eircom will be required to provide information, prior to launch, to demonstrate that the product was developed by Eircom taking full account of its non-discrimination obligations.
- 8.54 An alternative approach to monitoring compliance with the non-discrimination obligation could be that ComReg uses its information collection powers, under section 13D of the Communications Regulation Act to seek information from Eircom, potentially post launch. We believe that it is more proportionate, transparent and less burdensome on Eircom, to have a pre-notification requirement, which would allow Eircom to manage its processes and launch new or amended Next Generation WPNIA and WBA services and facilities in an efficient and manageable manner.

- 8.55 In relation to next generation WPNIA and WBA services and facilities which have been offered before the effective date of the final Decision Instrument, we are proposing that Eircom shall demonstrate that such services and facilities have been provided in accordance with Eircom's non-discrimination obligations. ComReg is seeking to impose a requirement upon Eircom to provide sufficient information to ComReg (as set out above) to demonstrate compliance and this should be done six months after the effective date of the relevant, final Decision Instrument.

8.5 Other non-discrimination obligations

- 8.56 To ensure transparency in terms of compliance with its non discrimination obligation, we are proposing that Eircom shall publish KPIs on its website in accordance with its transparency obligation and the KPI Decision (this is discussed in further detail in Section 9). KPIs are intended to enable stakeholders to observe any differences in the supply of common inputs self-supplied by Eircom and when compared with those offered to OAOs as inputs to wholesale products. They indicate the quality and performance achieved by Eircom in the supply of those inputs.
- 8.57 ComReg is also proposing to impose on Eircom a requirement to notify ComReg, at the date of agreement, of any potential co-investment arrangements that may take place between Eircom and another party. This provision is to ensure that Eircom does not attempt to leverage its market power from the WPNIA or WBA market so as to treat any contractual party in a more favourable way to how it treats other undertakings or itself.

8.6 ComReg's preliminary conclusions

- a) ComReg's preliminary proposal is to require the standard of Equivalence of Inputs for next generation WPNIA and WBA services and facilities.
- b) Where Eircom can demonstrate to ComReg that reasonable steps were taken to comply with the requirement to provide next generation WPNIA and WBA on an EoI basis or that it was not possible (for technical or other reasons) to comply with this requirement, EoO shall apply.
- c) Where there are any differences between the inputs provided by Eircom to Access Seekers and those provided internally, Eircom shall bring those differences to ComReg's attention in writing.
- d) Eircom should provide details in writing to ComReg of all relevant instances where it has not applied Equivalence of Inputs along with the justification for this. Eircom shall provide sufficient information (as set out in paragraph 8.34 and 8.35 above) to ComReg to demonstrate compliance and this should be done at the date of notification of the new or amended service or facility (i.e. seven or three months before the retail offer).

- e) With regard to next generation WPNIA and WBA services and facilities which were notified to ComReg before the effective date of the relevant Decision Instrument, details in writing should be provided to ComReg of all relevant instances where Eircom has not applied EoI and reasoning for this non-application. This information should be provided at some point before the expiry of six months following the effective date of the Decision Instrument.
- f) Eircom will publish KPIs on its website in accordance with the KPI Decision.
- g) Eircom shall notify ComReg, at the date of agreement, of any potential co-investment arrangements that may take place between Eircom and another party.

Q. 14 Do you agree with ComReg's analysis and application of the non-discrimination obligation? In what circumstances should the standard of Equivalence of Inputs or another standard apply? Please give reasoning and evidence to support your position.

Chapter 9

9 Obligation of transparency in the WPNIA and WBA markets

Overview

- 9.1 To ensure that the access and interconnection obligations are effective, the SMP operator is required to make publicly available any technical and/or financial information relating to the access and interconnection. Regulation 9 (1) of the Access Regulations states that the Regulator may impose on an SMP operator, obligations to ensure transparency in relation to access or interconnection requiring such an operator to make public specified information, such as accounting information, technical specifications, network characteristics, prices and terms and conditions for supply and use.
- 9.2 ComReg believes that a transparency obligation is justified, necessary and proportionate to ensure that no operator is disadvantaged in its downstream operations. The European Commission, in the Non-Discrimination Consultation points out that non-price discrimination is particularly difficult to detect and:
- “Therefore, in order to ensure the effectiveness of a non-discrimination obligation, it is equally important to ensure that both the national regulator and access seekers can monitor the SMP operator’s performance when supplying wholesale inputs in order to see whether it supplies any such wholesale services to its competitors with the same quality as it provides to itself. Otherwise the desired results in the downstream markets are unlikely to be achieved.”*¹¹⁶
- 9.3 We consider that the timely availability of information regarding network development and rollout, new products and product upgrades, associated service level agreements and performance metrics are essential, in order for operators to compete in the market with Eircom’s downstream divisions.

¹¹⁶ Page 7 of the Non-Discrimination Consultation.

- 9.4 The transparency obligation supports Eircom's other obligations such as its non-discrimination obligation, as Eircom must provide the necessary information to operators regarding how products and services are offered to them. Operators would also have visibility of the comparative performance of the wholesale inputs consumed by them and by Eircom's retail arm.

9.1 Transparency obligations

- 9.5 As part of this consultation we are proposing to impose transparency obligations with regard to Next Generation WPNIA and WBA services and facilities which shall ensure the following:
- a) Eircom will publish on its website and keep updated the Access Reference Offer (the "ARO") and the Wholesale Broadband Access Reference Offer (the "WBARO") which will contain information relating to Next Generation WPNIA and WBA services and facilities.
 - b) The ARO and WBARO (and associated invoices) will be sufficiently unbundled to ensure that OAOs availing of such services and facilities are not required to pay for services or facilities which are not necessary.
 - c) Eircom shall make publicly available and publish on its website non-pricing information in sufficient time i.e. six months prior to *new* Next Generation WPNIA and WBA services and facilities coming into effect, and two months prior to changes to *existing* Next Generation WPNIA and WBA services and facilities coming into effect.
 - d) Eircom shall make publicly available and publish on its website pricing information two months prior to coming into effect for both *new* Next Generation WPNIA and WBA services and for changes to prices for *existing* services.
 - e) Eircom will notify ComReg of price and non price information one month in advance of its publication on its website. This means that non price information should be provided seven months in advance of launch in the case of new products and services. Non price changes for existing services should be provided three months in advance of coming into effect. Pricing information for new services and changes to existing prices should be notified to ComReg three months in advance of coming into effect. Changes to the relevant ARO and WBARO (including *inter alia* changes to IPMs, Product Descriptions, SLAs, etc) should be provided to ComReg as part of the notification process.

- f) Eircom will provide information to Access Seekers in sufficient time regarding changes to the Eircom network or introduction and rollout of new technologies.
- g) Eircom will publish on its website sufficient information to identify and justify any differences between the Next Generation WPNIA and WBA services and facilities contained in the ARO and the WBARO and the comparable services and facilities which Eircom provides to itself.
- h) Eircom to publish Key Performance Indicators (KPIs) and information on Performance Metrics on its publicly available website.
- i) Eircom shall publish all SLAs (and any updates) on its website.

9.2 Transparency for network development and rollout

- 9.6 In the context of NGA, in order to allow operators plan in advance where and how they could be in a position to offer services, it is essential that there is adequate transparency regarding the roll out of Eircom's NGA network. Operators will also require advanced visibility of any upgrade of Eircom's network as this may impact the operator's own network architecture design and on its future requirements for access and interconnection.
- 9.7 During NGA rollout, information on cabinet locations is required in order to determine the location and extent of the addressable market and the nature of the services which can be launched from a cabinet. This information is key to the planning, execution and timing of a sales campaign and needs to be made available to operators in a timely, efficient, transparent and non-discriminatory manner.
- 9.8 Therefore, in order for operators to make informed decisions regarding future product offerings and the development of retail campaigns we are of the view that a quarterly update by Eircom to operators regarding planned network developments or the introduction of new technology, services or facilities is required. We are proposing to require Eircom to provide such updates on a quarterly basis (or such other regular basis as may be specified). A similar requirement was mandated in the WPNIA Decision and WBA Decision in relation to Next Generation WBA services and facilities¹¹⁷ which the draft Decision Instruments attached to this consultation document will continue.

¹¹⁷ Sections 16.2 of both of the decision Instruments attached to the WPNIA Decision and WBA Decision.

9.3 Transparency for product development and product changes

- 9.9 The SMP operator may have first mover advantage if its downstream arm is in a position to complete the preparatory work required to offer a retail product before OAOs. This would be an unfair advantage without the same preparatory time being made available to competing operators who consume the wholesale equivalent. To address this issue and to ensure a level playing field, it is essential that competing operators are afforded adequate information in a timely manner in order to prepare for the launch of retail services.
- 9.10 ComReg notes that Eircom is currently engaging with Industry on the development of the NGA product set; this form of engagement is necessary and appropriate to ensure that the needs of operators are met. Such engagement also assists Eircom in meeting its regulatory obligations in this regard.
- 9.11 In its response to the First NGA Consultation BT stated that:
- “Initial notification may be a plan or statement of intention, with more detail and prices published later. For a major service offering a reference offer should be published for information and comment and agreed with industry giving it will form the contract between the parties. These steps provide transparency so operators can compete fairly and given the reference offer forms the basis of the contract it's reasonable and proportionate the other party should be allowed to comment to it”.*
- 9.12 An Access Seeker will have a product development cycle for the implementation of its own retail products. In addition to being in a position to avail of the wholesale inputs supplied by Eircom, the Access Seeker will need to integrate those wholesale inputs with its own retail elements. This includes supporting essential activities such as order management, fault management, billing, service termination, and customer care preparation and set up.

- 9.13 The launch of new wholesale products, therefore, is likely to require the operator to engage in its own IT and process development. Sufficient time, implying an adequate notice period, is required for the operator to complete these activities prior to the launch of its retail services. We are of the view that in relation to Next Generation WPNIA and WBA services and facilities, as there are multiple new wholesale service offerings being developed concurrently, operators need access to product information (i.e. non-price information including the non price elements of the ARO and WBARO) for a notice period of six months prior to Eircom's launch of retail NGA services. ComReg would require an additional month, therefore seven months, notice in total.
- 9.14 The advance notification will assist ComReg in monitoring Eircom's compliance with its transparency obligations and aims to ensure that an appropriate level of development work, which also takes into account the requirements of operators occurs prior to launch. It is on this basis that ComReg considers it justified and proportionate that Eircom will be required to provide information to ComReg, prior to launch, to demonstrate that the ARO and WBARO are sufficiently detailed so as to ensure full transparency. An alternative approach is that ComReg could use its information collection powers under section 13D of the Communications Regulation Act to seek information from Eircom, potentially post launch, as a means of assessing its compliance with its transparency obligation. We believe that it is more proportionate and less burdensome on Eircom to have a pre-notification requirement as this will allow Eircom to manage its processes and launch new or amended Next Generation WPNIA and WBA services and facilities in a more efficient and orderly manner.
- 9.15 Once the initial set of Next Generation WPNIA and WBA services and facilities has been launched at the retail level, it may be appropriate to shorten the six months notice period for new Next Generation WPNIA and WBA services and facilities. ComReg appreciates that flexibility will be required with respect to the notice period in order to facilitate both Eircom and OAOs. We therefore reserve the discretion to reduce or extend the notice period on a case by case basis as required.
- 9.16 Respondents to the First NGA Consultation are of the view that a minimum of six months prior notice would be required if the alternative operator is to compete on an equal footing with Eircom's downstream retail arm.
- 9.17 Regarding changes to new Next Generation WPNIA and WBA services and facilities, post the first phase of NGA rollout, we would expect that Eircom will engage with industry to agree relevant additions where appropriate and reasonable, before submitting the revised ARO and WBARO to ComReg for regulatory approval.

- 9.18 Modifications to existing Next Generation WPNIA and WBA services and facilities, i.e. post the initial launch of Next Generation services and facilities, which result in changes to the ARO or WBARO, should require a shorter notice period. We propose that a three month notice period to ComReg and two months for industry (consistent with the WPNIA Decision and WBA Decision) prior to launch of the modification to the service or facility is sufficient time to allow operators to prepare retail offerings.

9.4 Information on services and facilities

- 9.19 Operators will require access to a broad range of information regarding the available wholesale product offerings. This information needs to be readily accessible, clear, accurate and up to date. It is particularly important that the information on services and facilities is such that operators clearly understand what components make up the offer and the price of each such that it is clear that they are only paying for the components which are necessary for the provision of the product, service or facility.
- 9.20 Transparency is needed to support accounting separation obligations, particularly to ensure that cost calculations and prices (i.e. internal price transfers) are visible. This would also allow ComReg to monitor compliance with any non-discrimination obligations, and address potential competition problems relating to cross subsidisation, price discrimination and the application of price squeezes.
- 9.21 Regulation 9(2) of the Access Regulations provides for the publication of a reference offer that is sufficiently unbundled to ensure that undertakings are not required to pay for facilities which are not necessary for the service requested.
- 9.22 We are of the view that an obligation on Eircom to maintain and keep updated a publicly available ARO and WBARO for Next Generation WPNIA and WBA services and facilities is necessary, in order to provide operators with the full range of information that is required. Recital (36) of the NGA Recommendation states that:

“New access remedies will need to be carefully specified, for instance with respect to technical protocols and interfaces serving the interconnection of optical networks or the scope and characteristics of new bitstream remedies”.

- 9.23 We believe that the existing WBARO and ARO should be expanded to encompass relevant Next Generation WPNIA and WBA services and facilities. The WBARO and ARO should, as appropriate, contain at least a description of all relevant Next Generation WBA and WPNIA services and facilities broken down into components according to market needs, including a description of the technical specifications and network characteristics of the access being offered, and a description of the associated terms and conditions for supply and use, including prices.

9.5 Transparency for price changes

- 9.24 We propose that Next Generation WPNIA and WBA price changes (for existing products and services) and new prices (for new products and services) should be notified three months in advance of coming into effect to ComReg and two months in advance to industry. This is consistent with notifications to changes to the ARO and WBARO as described in the WPNIA Decision and the WBA Decision. Other pricing notifications to assist in the operation of the proposed price control are set out in Section 11 and in the interest of completeness, are included in the summary table shown below in this Section.

9.6 Transparency in the supply of services

- 9.25 In accordance with the WPNIA Decision and the WBA Decision, Eircom is obliged under its transparency obligation to publish information about differences in its self-supply of WPNIA and WBA and supply to OAOs of those services. These obligations are intended to address the need to enhance the transparency of Eircom's provision of WPNIA and WBA to its own downstream operation in order to ensure inspection of differences between services provided to OAOs and services and those self-supplied by Eircom as inputs to its downstream products¹¹⁸.

- 9.26 In response to the First NGA Consultation, BT called for "*strong and effective transparency remedies*" in order for a non-discrimination obligation to work and explain:

"Our experience of the Irish market is that Non discrimination is extremely difficult to detect without robust transparency regulation. As we have commented on in other consultations, Non-Discrimination does not work properly without strong and effective „transparency remedies“ .

¹¹⁸ Paragraph 7.118 of D05/10.

- 9.27 It is ComReg's view that the measures proposed to enhance transparency regarding Eircom's self-supply of next generation WPNIA and WBA are both reasonable and justified considering the importance of the next generation access product set and to support the functioning of the EoI standard of non-discrimination.
- 9.28 As a result of Eircom's position as a vertically integrated operator, there exists the potential to discriminate between the services and facilities which Eircom provides to itself and those which it provides to its downstream competitors. Where those differences are significant, this may negatively impact on the Access Seeker's ability to effectively compete in the relevant retail market. It is on this basis, that we propose to require Eircom to publish on its website sufficient information to identify and justify any differences between the services and facilities set out in the ARO and the WBARO and the comparable services and facilities which Eircom provides to itself.
- 9.29 Given that Eircom is currently piloting Next Generation WPNIA and WBA services and facilities and is also engaged with Industry on NGA product development, it is possible that Eircom will have launched its NGA product suite before the final Decision Instruments resulting from this consultation come into effect. ComReg, therefore, wishes to be clear about the manner in which this obligation would be likely to be imposed. In accordance with its transparency obligation, we propose that:
- In relation to Next Generation WPNIA and WBA services and facilities which may have been notified to ComReg before the effective date of the final Decision Instruments, we propose that Eircom shall publish on its website, sufficient information to identify and justify any differences between these Next Generation WPNIA and WBA services and facilities as set out in the ARO and the WBARO and the comparable services and facilities which Eircom provides to itself. This should be done within six months of the effective date of the relevant Decision Instrument. The information shall include all material associated terms and conditions, including relevant processes, and shall be kept updated by Eircom as new Next Generation WPNIA and WBA services or facilities are developed and deployed or existing services or facilities are amended.

- In relation to new Next Generation WPNIA and WBA services and facilities which are notified to ComReg after the effective date of the final Decision Instruments, we propose that Eircom shall publish this information at the time of publication of the updated ARO or WBARO i.e. at the commencement of the notice period. The information shall include all material associated terms and conditions, including relevant processes, and shall be kept updated by Eircom as new services or facilities are developed and deployed or existing services or facilities are amended.

9.7 Monitoring performance

9.30 ComReg has mandated Eircom to publish Key Performance Indicators (KPIs) in the Decision on KPIs ComReg Decision No. D05/11 which applies to current generation WPNIA and WBA services and facilities. As part of this consultation, ComReg is proposing to require Eircom to publish equivalent KPIs in respect of Next Generation WPNIA and WBA services and facilities. KPIs are intended to enable stakeholders to observe any differences in the supply of common inputs self-supplied by Eircom and offered to OAOs as inputs to wholesale products. They indicate the quality and performance achieved by Eircom in the supply of those inputs.

9.31 This decision was welcomed by the European Commission¹¹⁹. The European Commission commented as follows:

“The Commission welcomes ComReg’s proposal to use key performance indicators (KPIs) in order to enhance its ability to monitor and enforce a non-discrimination obligation in four key markets. In this respect, the Commission shares ComReg’s view that the greater transparency around compliance by Eircom with its non-discrimination obligations could have a beneficial effect on competition in the relevant markets, as it not only provides the national regulator with a tool to detect potential non-compliance quickly but also as it is designed to increase the confidence both of Eircom’s competitors in the wholesale input and of consumers in the retail products offered by alternative operators.”

¹¹⁹ Commission decision concerning case IE/2011/1185: Introduction of key performance indicators in the markets for (1) retail narrowband access, (2) wholesale physical network infrastructure access.

³ wholesale broadband access and (4) wholesale leased lines (terminating segments) - Comments pursuant to Article 7(3) of Directive 2002/21/EC, available at http://circa.europa.eu/Public/irc/info/ecctf/library?l=/commissionsdecisions/ie-2011-1185_endatenrpdf/_EN_1.0_&a=d.

- 9.32 ComReg proposes that the KPIs contained in ComReg Decision No. D05/11 which currently apply to Current Generation services and facilities, shall also apply to Next Generation WPNIA and WBA services and facilities. KPIs for Next Generation products and services may need to be developed, but this is likely to be subject to a further consultation. As noted in ComReg Decision No. D05/11, it may be necessary to consult on appropriate KPIs when relevant products and services are fully operational. In considering KPIs for Next Generation WPNIA and WBA services and facilities, it will, of course, be necessary to take into account the availability of relevant data and the cost and practicality of implementation.
- 9.33 An obligation of non-discrimination needs to be supported by a clear transparency measure. In particular, this should involve publication of actual service standards achieved in the context of service level agreements (SLAs).
- 9.34 In a similar approach to that as contained in the WPNIA Decision and WBA Decision, Performance Metrics should be published by Eircom together with KPIs in order to provide full visibility to industry of Eircom's aggregate performance in relation to SLAs agreed with OAOs.

9.8 Summary Transparency and non-discrimination notification timelines for NGA wholesale products.

- 9.35 The table on the following page summarises the notifications to ComReg and industry arising from Eircom's proposed non-discrimination and transparency obligations. Note that for products launched soon after publication of any decision by ComReg, it may be necessary for us to exercise discretion as to notification timelines in order to prevent undue delay.

Summary Transparency and non-discrimination notification timelines for NGA wholesale products. (Guidance only)						
		Offer of new wholesale products	Amendments to wholesale products	Retail prices (see Chapter 11)	Commentary / other	Wholesale products launched <u>before</u> effective date of Decision Instrument
		Wholesale products launched <u>after</u> the effective date of Decision Instrument				Wholesale products launched <u>before</u> effective date of Decision Instrument
		(Note all time periods relate to time prior to product launch unless otherwise stated)				
Non-price information	Notification to ComReg	7 months	3 months	N/A	Includes Statement of Equivalence (Ref Chapter 8)	Statement of Equivalence 6 months from the Effective Date of the Decision Instrument
	Publication on Website	6 months	2 months	N/A	Includes publication of information relating to any differences between products provided to Eircom internally and OAOs	ARO and WBARO to be updated for NGA products and services as soon as possible after effective date Publication 6 months from the Effective Date of the Decision Instrument of Information relating to any differences between products provided to Eircom internally and OAOs
	Network updates/KPIs				Quarterly update to industry on network developments. KPIs to be published as per D05/11	

Summary Transparency and non-discrimination notification timelines for NGA wholesale products. (Guidance only)						
Pricing information	ComReg	3 months	3 months	15 working days before the retail prices are expected to come into effect	Provision of ongoing statements of compliance and annual statements of compliance with margin squeeze tests.	Prices to be published as soon as possible after effective date of Decision Instrument
	Industry	2 months	2 months	N/A		

ComReg's preliminary conclusions:

9.36 Eircom will have an obligation of transparency which will apply to the pricing and non-pricing terms and conditions for next generation WPNIA and WBA, in the level of detail set out above.

Q. 15 Do you agree with ComReg's preliminary conclusions, set out above, regarding the proposed transparency obligation in the context of NGA? Please provide reasons for your response.

Chapter 10

10 Provisioning of NGA services; In-Home activity; CPE and Voice services

Overview

10.1 A significant issue which may face operators is coordinating NGA service provision with provisioning related in-home activity. A vertically integrated dominant operator could have the potential to discriminate or leverage market power to the disadvantage of competitors, particularly in the more complex delivery involved in the provision of NGA services.

10.1 Provisioning of NGA services and In-Home activity

10.2 Service provisioning for current generation products does not, in general, require that a provisioning technician gains access to the customer premises in order to install an NTU (Network Termination Unit) or CPE (Customer Premises Equipment). For current generation services many customer provisions are activated by electronic enablement. Network intervention (up to and including the installation of an NTU) is required in a minority of cases. This situation is likely to change for NGA provisioning where access to the customer premises may be required to install a new NTU, for every customer provide. Additional CPE may also be installed simultaneously or on subsequent visits to the customer.

10.3 A vertically integrated operator can have a natural advantage in arranging multi-touch delivery i.e. where technician work is required at multiple sites in the access network as well as in the customer premises. This could arise because the same team of technicians (or individual technician) of the incumbent operator can synchronise activities in the access network with a visit to the end-user premises without difficulty. In contrast, the wholesale operator must ensure that it coordinates to a granular level with external parties, i.e. both Eircom wholesale and its retail customer especially where this customer is migrating from a current generation service or services. ComReg is aware that Eircom is discussing these issues with Access Seekers at and in addition, to the NGA forum.

10.4 In principle, a dominant operator should not leverage its market power in wholesale markets, to gain advantage, both price and non-price, in the retail provisioning and in-home activity. Such activity might include NTU custom installs, upgrade/optimisation of existing premises wiring and commissioning of bespoke equipment; activities which could significantly enhance the appeal of a vertically integrated operator when compared to its competitors. Furthermore, Eircom should ensure that all handoffs, and associated information transfer from wholesale provisioning activity, to the retail level should be non-discriminatory and should be such as to provide a reasonable basis for a comparable consumer experience to be provided by all suppliers in the market.

10.2 Customer Premises Equipment

10.5 The VDSL2 standard currently planned for deployment is a relatively new one and potential technical standards which may be required of CPE connected to Eircom's network are likely to become more complex with the anticipated launch of vectoring technology. There are other potential standards on the horizon, for example "phantoming"¹²⁰ which may provide further improvements in broadband speeds achievable on the Eircom copper plant.

10.6 Management of the CPE standards should be settled at the outset and with a view to addressing industry requirements in this area in order to maximise consumer welfare. The basic tenet of the Copper Loop Frequency Management Plan (CLFMP) is that no end user should cause undue interference to another end user; this should continue to be the overriding principle for attaching any equipment to the Eircom copper plant. This is clearly stated in its introduction:

"The principle objective of the plan is to limit the signal levels transmitted by a system in order to protect the operation of other systems in neighbouring cable pairs."

Such an approach would see CPE matters being addressed through the established CLFMP process in the normal manner.

10.7 ComReg believes that the principles that should be maintained or adopted by industry are:

- All CPE should adhere to the chosen international standards
- CPE standards should be decided upon and agreed in as far as advance as possible before deployment

¹²⁰ Phantoming is a technique whereby using a single copper wire as common ground from multiple pairs into a customer premises, allows greater bandwidth to be delivered to the end-user.

- All CPE deployed should adhere to the CLFMP and not cause any undue effect on the performance of other users connected to the Eircom copper plant
- An operator should be afforded a reasonable opportunity to test its CPE in a test environment with any other operator deploying VDSL cabinet equipment.

Q. 16 ComReg is interested in operator views on provisioning co-ordination, home-wiring and related matters and in workable methods to support the management of CPE in the NGA context. Please provide your views supported by outline scenarios and proposed solutions where possible.

10.3 Voice in the NGA context

- 10.8 Currently, Eircom retail and wholesale voice offerings are provided via its PSTN platform largely delivered over its copper access network. Eircom's regulated wholesale voice offers are based on a suite of obligations which incorporate the narrowband market in which the Carrier Selection (CS), Carrier Pre-selection (CPS) and Single Billing Wholesale Line Rental (SB-WLR) products have been mandated; and the three Interconnection Markets (Termination, Transit and Origination), in which other remedies have been imposed. Together, these obligations have resulted in a dynamic calls market and the combined CPS and SB-WLR products underpin the largest regulated wholesale market in terms of numbers of end customers.
- 10.9 Next Generation technology allows for the convergence of traditionally separate voice and data networks, using IP technology. Therefore, the transmission of voice over next generation access networks could be radically different from current generation access. The term "narrowband access" does not have the same relevance in an IP world as it relates to the frequency allocation associated with the transmission of voice over a current generation access path.
- 10.10 Many operators now have Voice over Internet Protocol (VoIP) offers in both the wholesale and retail space. There has been a manifest increase in the number of VoIP technology users in recent years, particularly with OTT (Over the Top) service providers. This is noticeable in the international calls market where OTT providers such as Skype and Google Voice have made significant inroads. Managed VoIP offerings, where the service is provided and guaranteed by the subscriber's local access service provider, has also increased substantially in the past number of years through operators such as UPC and Blueface.

- 10.11 The NGA Recommendation focuses on access for WPNIA and WBA, and does not discuss voice services in the NGA context. Eircom has announced that it intends to offer a retail NGA VoIP product and that it does not plan to offer a direct wholesale equivalent. The proposed rollout products, as described in Annex 5, have a “POTS Based” (PB) variant, where the Single Billing exchange launched product will be provided as a “line share” offering with the FTTC cabinet based products. It will be provided on separate copper as a “parallel service” with the FTTH products.
- 10.12 In Next Generation Access, voice could be managed over the broadband service and treated as another application being delivered using IP. The quality of the service could be variable, given that it is real-time traffic and is particularly sensitive to network performance issues such as transmission delays, packet loss etc. which could severely impact on voice quality. It is therefore important that Eircom offers sufficiently reliable and high quality NGA Bitstream and VUA products with a suitable Quality of Service (QoS) feature that will allow operators to provide an acceptable VoIP service to customers. Eircom should also ensure that operators have access to sufficient real or near-real time monitoring and test facilities to allow them to maintain a high standard of service to the end customer.
- 10.13 Eircom’s position is that the barriers to entry to this market are low for any operator, particularly one currently active in the WLR or Bistream market, such that it could easily replicate the proposed Eircom retail NGA VoIP offering.

Q. 17 Do you accept the Eircom position that the barriers to entry to the retail VoIP market are low based on Eircom’s proposed NGA wholesale product set? In particular, are barriers to entry low for those operators currently operating in the WLR or WBA markets? Please provide specific supporting evidence for your answer in terms of entry requirements and likely associated costs.

Chapter 11

11 Obligation of price control and cost accounting in the WPNIA and WBA Markets

11.1 Overview

- 11.1 As discussed earlier in the document, in the WPNIA and the WBA market decisions, we set out high level remedies in the context of NGA. At that time developments in NGN/NGA were at a very embryonic stage and setting out detailed remedies in the absence of information around investment would have been premature.
- 11.2 However, since then investment in the NGN core network has now been rolled out and commitment by Eircom to invest in an NGA fibre based network is now a reality. The details of Eircom's investment plans have been outlined earlier in the document. In summary, Eircom has committed to upgrade its existing copper access network with the roll-out of an NGA program that will pass approximately 1 million premises in a multi-year rollout. As discussed earlier in the document, we consider that based on an assessment of the Eircom exchanges with more than 1800 lines that there could be approximately 194 exchanges with the potential for NGA rollout over the next few years - "NGA Footprint Areas". Phase 1 of the NGA rollout includes a commitment by Eircom to reach 100,000 premises by summer 2012 and Phase 2 includes a further rollout of another 12 exchanges to reach 125,000 premises.
- 11.3 In general, Eircom's NGA rollout is likely to coincide with the current cable footprint areas of UPC. The NGA Footprint Area are those areas where NGA is reasonably likely to be rolled out (1m homes) over the next few years. While UPC may already have coverage in some of these areas it is not likely that it will have footprint in all of it. There may be further areas outside the NGA Footprint Areas that are viable, however the initial roll out will likely inform any such commercial decisions by Eircom. If NGA is eventually rolled out here it is likely to be defined by the boundary of Eircom's NGN core network. It is our view that NGA is unlikely to be deployed outside the NGA Footprint Area set out above and that no LLU is expected to occur beyond the NGA area; instead OAOs will need to rely on access through WBA and WLR.

- 11.4 The proposed pricing approach set out in this section is relevant to the NGA Footprint Area only. However, we will continue to monitor NGA deployment and if the NGA Footprint Area proves to be more extensive then we will review this when and where appropriate.
- 11.5 There is a significant risk that without regulatory certainty with regard to pricing in particular, not all stakeholders will be in a position to make informed business decisions in the short term or indeed in the medium to long term. This could have very negative long term consequences to competition and therefore on consumer choice.
- 11.6 This section discusses whether, as previously decided in the WPNIA and the WBA market decisions, a price control obligation is warranted in relation to NGA products and services in both of these markets - and a proposed further specification of an appropriate form of a price control remedy to achieve ComReg's regulatory objectives.
- 11.7 In the First NGA Consultation, we explored the various costing and pricing options available, where a cost-oriented price control may be appropriate. We also recognised that failure to set the correct pricing incentives, such as sufficient economic space between different wholesale products, or to provide regulatory certainty to potential NGA investors, could lead to an under-investment in NGA infrastructure.
- 11.8 It is equally important that investors have clarity on the regulatory framework that allows them to make a business case for cost recovery and investment return in the long term, subject of course to meeting competition and consumer demand. In addition, we must consider the downside of Eircom not investing in NGA and whether there is evidence to suggest that consumers would in fact move to other alternative infrastructure operators to satisfy current and likely future demand for data heavy services which require high speed networks. For Eircom, the decision not to invest, or any delay to any possible investment, could result in a situation where it does not fully recover the cost of either its current generation assets or its new investment in NGA as consumers may migrate to alternative platforms.
- 11.9 This Second Consultation in terms of pricing is now the outcome of the detailed consideration of the NGA Recommendation, the responses received to the First NGA Consultation, the competition problems identified in the WBA and WPNIA decisions and more recent developments in the Irish market.
- 11.10 In summary, we propose the following approach for NGA pricing:

11.11 The WPNIA products and services in the context of NGA will continue to be subject to maximum prices based on cost. Currently, the maximum prices for LLU and SLU are based on the “BU-LRAIC plus¹²¹” methodology. We are now proposing to introduce a further ceiling for SLU and LLU, in the NGA Footprint Areas, such that the price of SLU plus the cost of exchange-side fibre plus other relevant costs based on an EEO cost base must be no greater than the offered price for VUA. This may be required in order to ensure that there is a sufficient economic space (or margin) between SLU and VUA based on the NGA Margin Squeeze Model.

11.12 Therefore, we consider that the SLU price in the NGA Footprint Areas should be based on the lower of either:

- The maximum charge, as set out in ComReg Decision No D01/10 or as amended based on changes by Eircom to the underlying parameter(s) of the Copper Access Model as set out in ComReg Decision D01/10. This would require a review by ComReg.

or

- The revised charge derived by the application of the margin squeeze test between the VUA monthly charge and the SLU monthly charge based on the NGA Margin Squeeze Model.

11.13 Where the SLU price is reduced in either of the two cases above, Eircom would be required to ensure price consistency with the LLU price, where appropriate, using the Copper Access Model, in the NGA Footprint Areas.

11.14 Civil engineering access (including duct and pole access) will be priced at depreciated historical costs plus the cost of remediation and ongoing maintenance (together with a rate of return). Dark fibre will be priced at current cost for the fibre element plus historical costs for the relevant civil engineering access element.

11.15 The WBA products and services, next generation Bitstream (or referred to throughout this section as "NGA Bitstream") and VUA, will be priced by Eircom with reference to a number of margin squeeze tests, which will be based on the "NGA Margin Squeeze Model".

¹²¹ ComReg Decision D01/10 refers to “BU-LRAIC” which was based on Eircom’s costing data adjusted for efficiencies, where appropriate. Therefore, the BU-LRAIC methodology used in 2010 for LLU and SLU included an appropriate apportionment of common costs. Where an appropriate portion of common costs are included as part of the cost base we now more commonly refer to this as “BU-LRAIC plus”. Therefore, throughout the paper we refer to the methodology from ComReg Decision D01/10 as “BU-LRAIC plus”.

11.16 For clarity, we are not setting absolute prices for NGA services as part of this draft decision. The proposed outputs of the NGA Margin Squeeze Model are based on the various cost stacks assumed for each service along the value chain. Eircom would retain flexibility to set the level of retail prices. Depending on the retail prices set, Eircom would then determine the wholesale prices in line with the NGA Margin Squeeze Model. However, as Eircom will be subject to a number of margin squeeze tests, it can set the prices for NGA Bitstream and VUA at prices above these outputs where the retail margin squeeze test allows it. However, Eircom cannot price below these outputs without the appropriate adjustment to the SLU (and where appropriate to the LLU) access prices in the NGA Footprint Areas or where the underlying assumptions for usage and costs change materially. However, to the extent that there is no take-up of LLU and SLU services or where SLU no longer exists, it may be appropriate to consider a price floor for WBA services, which would be subject to a further consultation.

11.17 The pricing freedom for WBA is predicated on the following:

- The need to allow freedom to test consumer demand responsiveness
- The presence of a cable competitor
- The constraint exerted by legacy Bitstream. As the legacy products in the WBA market are currently priced on a retail minus basis there is a strong case to put in place price ceilings on legacy Bitstream and ComReg will address this as a matter of priority where the retail prices of legacy products have remained static and wholesale costs have reduced.
- The constraint exerted by copper unbundling. ComReg notes that currently LLU volumes have stagnated but we believe that LLU continues to be an important element of its regulatory strategy.
- Delivery of pricing and access for NGA on a fair and non-discriminatory basis as outlined in Section 8.

11.18 ComReg favours consistency of treatment across copper and fibre based services for now. The Market review for WPNIA found that copper and fibre based WPNIA services fall within the same market and the proposed approach is consistent with this. Furthermore, it is paramount that legacy copper based services (which as mentioned above provide a constraint in the WBA market) are not squeezed at least until the fibre network is extensive and ComReg is satisfied that wholesale product and migration processes have been proven to work well.

- 11.19 In the event that a decoupling of copper and fibre based services were allowed so as to encourage migration to fibre, a review of the fibre regulatory pricing environment may be necessary to ensure that the underlying wholesale costs are cost oriented. Any changes of this nature may be subject to further consultation.
- 11.20 Where WLR is bundled by Eircom with a WBA next generation service, we have considered the potential pricing implications which may result and we have set out a number of options in subsection 11.6.3 where we welcome the views of industry. These options aim to ensure that where Eircom's downstream arm or an Access Seeker, is using the bundled WLR/next generation WBA wholesale input, it can effectively compete, in terms of price, in the NGA Footprint Areas.
- 11.21 We believe that where WBA (next and current generation) is bundled with WLR, all lines must be priced in accordance with the relevant margin squeeze principles set out in any decision based on Consultation Document No 11/72 on Bundles for current generation services as well as this consultation for next generation services and ComReg Decision No D07/61 (which includes the price control for WLR).
- 11.22 We note that any reduction to the WLR price can be made in accordance with ComReg Decision No. D07/61 (which sets a maximum price). We also discuss whether it would be appropriate to allow a discount to OAOs on a non-discriminatory basis where WLR is bundled with a broadband service (including Copper based services such as Bitstream and LLU Line Share). Under this scenario and in line with the notification requirements contained in ComReg Decision No D07/61 and this draft Decision Instrument, Eircom will not implement any discount in respect of a bundled WLR/next generation WBA wholesale input without prior notification to ComReg. Regardless of the option chosen we favour the maintenance of an appropriate economic space between LLU and services such as WLR and VUA and Bitstream (legacy or NGA).
- 11.23 For Migration charges, Eircom will be obliged to offer cost oriented migration charge(s) for all current generation and next generation regulated services related to the WPNIA and the WBA market. We propose that a universal migration charge would apply to all NGA and legacy services where the likely cost of migrations (including connections where appropriate) for all current generation and next generation products/services in the WBA and WPNIA market over a period of time would be divided by the likely volume of migrations during this same period, including all retail and wholesale access paths likely to be served by FTTC/FTTH. This is discussed in detail in subsection 11.9 below.

- 11.24 We believe that the proposals set out below are a reasonable approach during the early years of NGA rollout to achieve the objectives of the NGA Recommendation and ComReg's regulatory objectives.
- 11.25 Pursuant to Regulation 13(1) of the Access Regulations, where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessive level or may apply a price squeeze to the detriment of end-users, ComReg may impose 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. The WBA and WPNIA market analysis decisions imposed price control obligations at a high level and these obligations are being further specified now in this consultation. Pursuant to Regulation 13(2), to encourage investments by the operator, including in next generation networks, ComReg shall when considering the imposition of obligations in relation to price control and cost accounting take into account the investment made by the operator which ComReg 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. Pursuant to Regulation 13(3), ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits. ComReg has analysed the above in the context of this section 11 and also in the RIA set out in section 14.
- 11.26 We consider that given the possible constraints on Eircom's retail pricing for next generation standalone broadband products in the WBA market, that a retail margin squeeze test may be more appropriate, for now, to ensure that there is sufficient economic space between the retail market and the regulated wholesale market. In addition, we propose that a number of margin squeeze tests are imposed on Eircom between the wholesale products to ensure sufficient economic space between the relevant products in the WBA market (Market 5) and from the WBA market to the equivalent access product in the WPNIA market (Market 4). This should promote efficient investment and sustainable competition. This is discussed in detail later in this section.
- 11.27 While we refer interchangeably to retail minus and to a retail margin squeeze test throughout this section of the document, it is important to clarify that we are not proposing a "retail minus" price control for NGA as it is traditionally known.

- 11.28 A retail-minus price control is generally where the wholesale price is determined by taking the retail price less a certain percentage to cover the retail costs (e.g. 14% in the case of wholesale line rental). Any change in the retail price would automatically mean a change to the wholesale price. This approach would not be possible in the current context where a small number of wholesale products support many retail offers.
- 11.29 We consider that competitive access through LLU will continue to play an important role at least until such time as there is significant rollout to the NGA Footprint Areas. In addition, LLU remains an important form of access until the NGA wholesale services are proven to work well and provide competitive access on a non-discriminatory basis. In the meantime, we propose to prevent potential foreclosure downstream (by means of a constructive refusal to supply LLU), while recognising that we may need to encourage migration from copper to fibre, by pricing, at some point the future. ComReg will continue to monitor this during the transition.
- 11.30 As the consumer market is fast evolving with the evolution of new data and content services, any remedies proposed will require an element of flexibility going forward to ensure they are adaptable to changing market circumstances as they arise.
- 11.31 In line with ComReg's statutory objectives under Section 12 of the Communications Regulation Act, ComReg recognises that the main objectives of determining the appropriate pricing mechanism for NGA is to send the appropriate signals to the market so as to encourage efficient investment in infrastructure and also to promote competition to the benefit of end-users. ComReg as an NRA has the responsibility to promote and further intensify competition in the electronic communications markets. Competition clearly remains essential for safeguarding choices and prices for consumers, in particular in relation to technological change and transition to fibre.
- 11.32 The Consultancy firm, Oxera, was hired to assist us on the economic aspects of price regulation and the relevant principles that should apply where a price control obligation is considered necessary. We also engaged TERA consultants to assist us on the appropriate price structures and levels of charging for existing and new SMP products and services during and after the period of investment for NGA products and services relevant to the WPNIA and WBA markets. TERA previously assisted us with the review of LLU and line share prices, current generation Bitstream prices and NGN Ethernet prices. The models derived for the purposes of those pricing reviews are also relevant in this context and the relevant information has been taken into account as part of the proposed approach in this paper.

11.33 The details of Oxera's advice are set out in this paper and Oxera's report¹²², which is referred to throughout this section as the "Oxera Report", has been appended in Annex 8 to this document. TERA have assisted us in the development of a detailed margin squeeze model, which is generally referred to throughout this section as the "NGA Margin Squeeze Model". The inputs to the Model are described in detail in Section 11.10 and which require significant feedback from industry.

11.2 Structure of this section of the document

11.34 The rest of this section is structured under the following headings:

- Reasons why a price control is warranted
- Price control obligations in the WPNIA and WBA markets
- Choosing the appropriate form of price control in the context of NGA
- Specific margin squeeze tests and principles
- Cost orientation and Weighted average cost of capital ("WACC")
- Co-investment/risk sharing options
- Migration charge options - WPNIA and WBA Markets
- NGA Margin Squeeze Model
- Price control period and future review.

¹²² The Oxera Report entitled "*Eircom's next-generation access products – Pricing principles and methodologies – Prepared for Commission for Communications Regulation*" dated March 2012.

11.3 Reasons why a price control is warranted

11.35 As discussed in the First NGA Consultation, there are two markets which have been identified by the European Commission in the Relevant Markets Recommendation that are most closely identified with NGA developments:

- WPNIA, being Market 4, and
- WBA, being Market 5 in the Relevant Markets Recommendation.

11.36 The WPNIA and WBA markets are those most closely related with the provision of wholesale inputs to support the provision of retail broadband and other services. As discussed earlier, Eircom was designated with SMP in both the WPNIA and WBA markets. Consequently, access regulation has been deemed necessary.

11.37 In Eircom's response to the First NGA Consultation, Eircom stated that Eircom is unlikely to have an incentive to exclude third party access seekers and that it would be rational to embrace them as customers in order to maximise the use of, and returns on, its NGA investment. This suggests that any regulatory remedy should be light touch, and that ex ante price controls for Eircom's wholesale NGA products would not be necessary or proportionate.

11.38 As recognised by Oxera in Section 2 of the Oxera Report, an important factor influencing the incentives to foreclose, and consequently the rationale for price regulation, is the extent to which the incumbent's behaviour is constrained by alternative platforms, either in the retail market or as alternative suppliers of wholesale inputs. Even when there is no direct competition between different networks (cable versus Eircom's fixed line) at the wholesale level, competition in the retail market could constrain Eircom's wholesale pricing and incentives to offer wholesale services at all.

11.39 As identified by Eircom and its advisor, a prerequisite for removing access regulation is that there are incentives to provide access to third parties where there is a high probability that these parties can acquire retail customers that Eircom could otherwise not acquire cost-efficiently. The extent to which Eircom have incentives to offer access on non-discriminatory and reasonably priced terms depends on the distribution channels available to OAOs, and the additional services that the OAOs can offer. We consider that the following factors are relevant in this regard (as set out in Section 2 of the Oxera Report):

- Eircom is active in the mobile market through its wholly owned subsidiary, Meteor, and it has provided mobile as part of its bundle offerings with broadband in the current generation environment. Therefore, it seems unrealistic to assume that Eircom would, in the absence of price regulation, provide access to other mobile operators on fair and reasonable terms in order to acquire customers who prefer bundles that include mobile services.
- It could be in Eircom's interest to compete against UPC by including in its broadband packages a credible TV offering. Eircom could provide multicast (or IPTV) services independently. A further route to broadcasting revenues could be by providing wholesale access to an entrant with rights to broadcast content that is not available on free-to-air TV, for example, and which is therefore better placed than Eircom to provide triple-play. However, there is no evidence to date of such a form of 'collaboration'.
- In the mobile market, where commercially agreed access terms are witnessed (for example, Tesco and Lycamobile in Ireland), the rationale stems from excess capacity and the ability of 'virtual' operators to market subscriptions through alternative distribution channels (e.g. supermarket chains). There is no evidence of any significant extent of this type of market entry in the Irish broadband market.

11.40 Given these reasons, Eircom's claim that it could have a strong incentive to offer access to wholesale products on non-discriminatory terms is currently not based on robust evidence that these market dynamics are actually present.

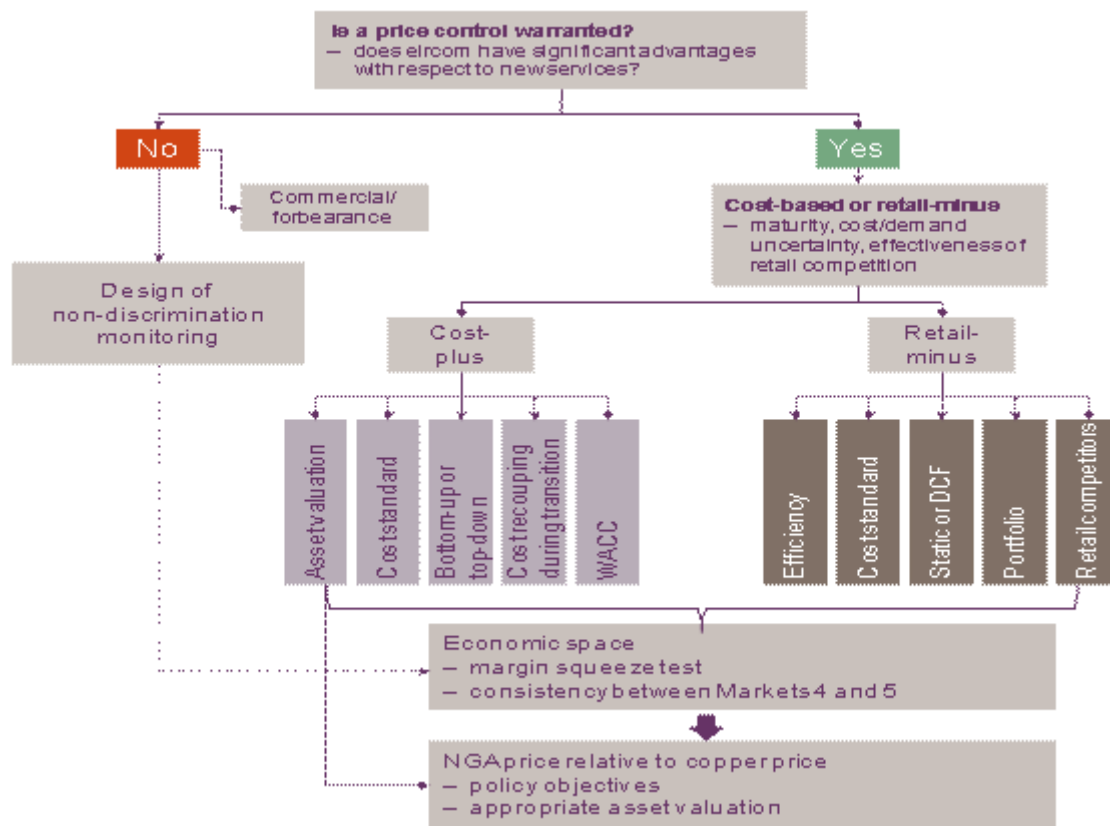
11.41 To summarise, as a price control has been deemed necessary, we have considered if there are any incentives for Eircom to foreclose downstream rivals. We consider that while the ability of Eircom to overcharge its retail customers (in areas where there is some presence of cable competition — whose offering includes a high speed broadband service) may appear to be limited, the incentive to provide third party access seekers competitive wholesale services on commercial terms together with the incentive to sell wholesale services at preferential prices to those higher up the ladder of investment appears to be weak.

11.42 To date, we have no evidence to justify that Eircom has consistently negotiated reasonable terms and prices with an entrant, absent regulatory intervention.

11.43 Consequently, we have concluded that there is currently insufficient evidence to indicate that it is in Eircom's interest to provide access on reasonable terms without regulation.

- 11.44 In conclusion, forbearance may be a suitable approach to regulating next generation access investments where there are significant prospects for wide scale, competing access infrastructure deployments. Such a reality could provide a competitive constraint to the potential for incumbent operators leveraging any position of market power. However, the evidence would not suggest that there is sufficient national access competition as set out in more recent market analysis decisions.
- 11.45 We therefore consider that the prospect for wide scale competitive access infrastructure is relatively low. The circumstances under which no price controls would be necessary are not met and that forbearance is not an appropriate policy in Ireland at this time.
- 11.46 Eircom retail remains the most popular form of broadband Internet connection in Ireland. While there has been a decline in the number of wholesale Bitstream connections, as some OAOs have migrated customers to LLU connections, Eircom's position relative to the OAOs using the copper loop (i.e. wholesale Bitstream and LLU operators) has remained relatively unchanged over the past two years. Eircom's position relative to cable, in particular, has deteriorated to some extent. However, the numbers are still somewhat modest in relative terms, and do not reflect competition in the national market. It is apparent that consumers are responding to UPC's product offering, putting pressure on both Eircom and its wholesale customers. While Eircom's retail pricing is constrained to some extent by UPC's offerings in those areas where there is cable TV, the OAOs have not gained any considerable share of the market in the past few years. Where entry has occurred, it still relies on price regulation in both WPNIA and WBA Markets.
- 11.47 On the other hand competition is concentrated to a greater degree in urban areas compared to less populated areas. It is also worth noting that consumer appetite for NGA based services is not well understood.
- 11.48 Taking all of these considerations together our view is that regulation is still required and should be focused on ensuring that access is available to Eircom's network at the wholesale level. We are also of the view that wholesale price controls, while necessary, should not inhibit retail pricing flexibility unduly. Also there is a case for treating NGA, which will be rolled out in densely populated areas only, with a little more flexibility than legacy services, particularly given the uncertainty around forecasting demand.
- 11.49 The subsections that follow below consider the main points illustrated in Figure 5, following the "YES" price control path (i.e. a price control is warranted).

Figure 5: Assessment of whether a price control is warranted



11.4 Price control obligations in the WPNIA and WBA Markets

11.50 This subsection sets out the relevant products in the WPNIA and WBA markets, both current generation and next generation, and the price control obligation currently in place, or in some cases which will be further specified as part of this consultation process.

11.51 The main discussion points of this subsection are set out under the following headings:

- Overview of price controls for the WPNIA and WBA markets
- Price control for the WPNIA market
- Price control for the WBA Market.

11.4.1 Overview of price controls for the WPNIA and WBA Markets

11.52 The table below includes a summary of the current generation and next generation products and services in the WPNIA and WBA markets and the status of the price control obligation as well as the relevant decisions already in place.

WPNIA Market	Current generation or next generation	Price control	Decision or Status
Local loop unbundling ("LLU") - Copper	Current generation	Cost orientation (BU - LRAIC plus)	ComReg Decision D01/10 ¹²³
Sub loop unbundling ("SLU") - Copper	Current generation	Cost orientation (BU-LRAIC plus)	ComReg Decision D01/10
FTTH - Unbundled access to fibre loop	Next generation	Subject of this consultation	To be determined (TBD)
SLU Backhaul costs	Next generation	Subject of this consultation	TBD
Migrations	Current and next	Subject of this	TBD

¹²³ ComReg Document No 10/10 (Decision No D01/10); Setting maximum local loop unbundling ("LLU") and sub loop unbundling ("SLU") monthly rental charges; 9 February 2010.

WPNIA Market	Current generation or next generation	Price control	Decision or Status
	generation	consultation	
Civil engineering infrastructure	Current and next generation	Subject of this consultation	TBD
Dark fibre	Next generation	Subject of this consultation	TBD
Fault repair	Next generation	Subject of this consultation	TBD

WBA Market	Current generation or next generation	Price control	Decision or status
Bitstream ¹²⁴	Current generation	Retail minus	ComReg Decision D01/06 ¹²⁵
Bitstream Managed Backhaul ¹²⁶ (Eircom BMB product)	Current generation	Retail minus	ComReg Decision D01/06
End-to-end wholesale Bitstream access ¹²⁷	Current generation	Retail minus	ComReg Decision D01/06
FTTH - End-to-end Next Generation Bitstream (with and without multicast)	Next Generation	Subject of this consultation	TBD
FTTC - End-to-end Next Generation	Next generation	Subject of this	TBD

¹²⁴ Wholesale broadband access: Further Consultation to Consultation Document No 10/56 and draft decision in relation to price control and transparency; 22 December 2010.

¹²⁵ ComReg Document No 06/01 (Decision No D06/01): Decision Notice - Retail minus wholesale price control for the WBA Market; dated 13 January 2006

¹²⁶ Wholesale broadband access: Further Consultation to Consultation Document No 10/56 and draft decision in relation to price control and transparency; 22 December 2010.

¹²⁷ Wholesale broadband access: Further Consultation to Consultation Document No 10/56 and draft decision in relation to price control and transparency; 22 December 2010.

WBA Market	Current generation or next generation	Price control	Decision or status
Bitstream (with and without multicast)		consultation	
FTTH - NGA Bitstream (with and without multicast)	Next generation	Subject of this consultation	TBD
FTTC - NGA Bitstream (with and without multicast)	Next generation	Subject of this consultation	TBD
FTTH - Virtual unbundled access ("VUA") (with and without multicast services)	Next generation	Subject of this consultation	TBD
FTTC - VUA (with and without multicast services)	Next generation	Subject of this consultation	TBD
Migrations	Current and next generation	Subject of this consultation	TBD
Backhaul	Next generation	Subject of this consultation	TBD

11.4.2 Price control for the WPNIA Market

- 11.53 As already discussed earlier in the document, Market 4 is the WPNIA market. In 2010, ComReg published its decision on the WPNIA market, which included the obligation of a price control on Eircom (the SMP operator).
- 11.54 The current form of the price control obligation in WPNIA is cost orientation. In addition, to its obligation of cost orientation, the regulatory obligation not to cause a margin/price squeeze was also imposed on Eircom with regard to its current generation products and services.
- 11.55 We consider that the cost orientation obligation is relevant for the access products to be mandated as part of this decision, in the context of NGA.
- 11.56 As set out in the table above, the two main current generation products in the WPNIA market are LLU and SLU. The maximum rental charges for LLU and SLU, currently in the marketplace, are based on a cost orientation obligation (or often referred to as the cost plus approach). This approach is consistent with that prescribed by the European Commission in Recital 32 of the NGA recommendation where it stated that:
- "Consistent with the pricing of local loop unbundling, the pricing of all items necessary for the provision of sub-loop unbundling is to be cost-oriented and in line with current methodologies used for pricing access to the unbundled copper loop".*
- 11.57 The LLU and SLU prices, which were set as maximum charges in ComReg Decision D01/10, were based on a bottom-up long run average incremental cost plus ("BU-LRAIC plus") methodology (using the "Copper Access Model") and are based on nationally averaged prices. In summary, the Eircom access network was revalued to reflect the cost of an efficient new network with the objective of promoting infrastructure based competition further down the value chain. The objective of alternative network investment has evolved over the past few years. For example, the investment in the cable network in Ireland has been significant in technology such as DOCSIS 3.0 standard and as evidenced in the high speed broadband offers for consumers in the main urban areas.
- 11.58 We consider that the price ceiling based on the BU-LRAIC plus methodology may continue to be relevant to the copper based LLU (and SLU) products. However, this will depend on any changes required by Eircom at a retail level given the migration to NGA services, particularly where changes are as a result of constraints from competitors in the retail broadband market.

- 11.59 However, alternatively and in the event that there are changes to the retail price(s) charged by Eircom as a result of these competitive retail constraints, we consider that the prices for SLU and LLU products may need to be revised down further in those NGA Footprint Areas, to ensure that there is sufficient economic space between the VUA product in the WBA market and the equivalent SLU access product in the WPNIA market.
- 11.60 Therefore, we propose to introduce a further price ceiling for SLU (and LLU) in the NGA Footprint Areas which may be calculated by reference to the price of VUA adjusted for the costs that an entrant operator using SLU would incur to provide VUA based on the NGA Margin Squeeze Model, which is discussed in detail later in this section. This is one of the main points considered in subsection 11.5 below.
- 11.61 We consider that the cost orientation obligation should be applied in the context of the NGA WPNIA access products mandated as part of this consultation and decision. This consultation further specifies, insofar as possible, how the cost orientation will be applied going forward in this context. This approach is consistent with Regulation 13(1) of the Access Regulations, where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessive level or may apply a price squeeze to the detriment of end-users, and ComReg may impose 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.
- 11.62 This has been further discussed in the subsection below on 'Choosing a form of price regulation'.

ComReg preliminary conclusions:

- 11.63 Eircom will be obliged to comply with the cost orientation obligation in relation to the NGA access products mandated in the WPNIA market. This is further specified for the specific NGA products in the subsection below.

11.4.3 Price control for the WBA Market

- 11.64 As already discussed earlier in the document, Market 5 is the WBA market. In July 2011, ComReg published its decision on the WBA market, which included the obligation of a price control on Eircom (the SMP operator).
- 11.65 The current form of the price control in the WBA market on the current generation copper based broadband is a retail-minus regime. In addition, there is also a retail margin squeeze test in existence since 2006, under ComReg Decision D01/06. The recent WBA Decision also imposed the obligation not to cause a margin squeeze.
- 11.66 Given the uncertainties in respect of consumer demand for NGA services, and the potential choice available to consumers via the cable platform and LLU we believe that a price control that provides flexibility but that maintains an appropriate margin between retail and wholesale prices is important. In addition, assessment of the appropriate economic space between the wholesale NGA products in the WBA market (VUA and NGA Bitstream) is also important. This is consistent with Regulation 13(1) of the Access Regulations, where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessive level or may apply a price squeeze to the detriment of end-users, and ComReg may impose obligations relating to cost recovery and price controls.
- 11.67 The proposed retail to wholesale margin squeeze test and the wholesale margin squeeze tests are discussed in detail below in subsection 11.5.
- 11.68 We consider that ComReg Decision D01/06 is relevant in the context of NGA for the retail margin squeeze test in the WBA market but with some minor amendments to specific sections of the Decision Instrument in the context of NGA as follows:
- In Section 4.2 the definition for "products" needs to be replaced so that we are consistent with the definition set out in the Accounting Separation decision (ComReg Decision D08/10) and also to take account of next generation services. Therefore, the definition for products is proposed to be as follows:

"product" for the purposes of this decision instrument is any offering at the wholesale or retail level and is a subset of a service.
 - Section 4.4 relates to a "retail minus" price control. Rather than a "retail minus" price control we are proposing a retail margin squeeze test in the WBA market for NGA. Therefore, the reference to retail minus should be replaced by retail margin squeeze test in the context of NGA services.

- Section 4.5.2 and 4.5.3 relates to the formula for calculating the wholesale rental price. Both of these sections are not relevant in the context of NGA given that we are proposing a retail margin squeeze test for NGA, rather than a retail minus approach (with a formula).
- In Section 4.5.4 the word "material" needs to be inserted before "amendment". Eircom are currently obliged to notify ComReg and to provide a statement of compliance for retail prices no later than fifteen working days before the price becomes operative in the marketplace. This change in terms of materiality in the context of NGA means that Eircom only provide a statement of compliance for material services. A further discussion on the meaning of "material" is set out below in subsection 11.5.4.
- Section 4.7.1 should be amended so that it is clear that Eircom are obliged to ensure that any promotions offered in the context of NGA should comply with the retail margin squeeze test.
- Section 4.8.1 should be amended so that it is clear that Eircom are obliged to ensure that any discounts or bundles in the context of NGA comply with the retail margin squeeze test.

ComReg's preliminary conclusions:

11.69 Eircom will be obliged to comply with ComReg Decision D01/06 in the context of NGA for the retail margin squeeze test, except for the amendments noted above.

11.70 In addition, any amendments to ComReg Decision D01/06 as a result of any further specifications from this consultation and decision shall also be taken into account.

Q. 18 Do you agree with ComReg's preliminary views, as set out above, on the price control for products and services in the context of NGA in the WPNIA and WBA markets? Please provide reasons for your response.

11.5 Choosing the appropriate form of price control in the context of NGA

11.71 This subsection sets out the two main relevant forms of price control that could be considered in the context of Eircom's NGA deployment for the provision of standalone broadband from the WPNIA and WBA markets.

11.72 The details of this subsection are discussed under the following headings:

- Cost orientation:
 - > WPNIA Market
 - > WBA Market.
- Margin squeeze tests:
 - > Retail to wholesale NGA Bitstream (and End-to-end Next Generation Bitstream where it is provided)
 - > Wholesale margin squeeze tests in WBA and from WBA to WPNIA.

11.73 These are discussed in turn below.

11.5.1 Cost orientation - WPNIA Market

11.74 This subsection is discussed under the following sub headings:

- LLU and SLU
- Unbundled access to the fibre loop (or FTTH)
- Civil engineering infrastructure (incl. duct access)
- Dark fibre
- SLU Backhaul
- Migrations
- Fault repairs.

LLU and SLU:

11.75 Cost orientation is a well established remedy used by national regulatory authorities ("NRAs") and it has been used by ComReg for regulating Active and Passive wholesale products for many years.

11.76 As discussed above, the current copper based LLU and SLU maximum prices were derived on a BU-LRAIC plus methodology and are currently based on nationally averaged prices based on the expected maximum take up modelled in 2010 for these services to ensure overall cost recovery by Eircom.

11.77 As set out in Section 1 of ComReg Decision D01/10:

The maximum charges determined by ComReg in this decision do not prevent Eircom from charging lower prices for LLU and SLU monthly rental, when appropriate, provided that any proposed lower charges are subject to ComReg's prior review and approval and that Eircom is in compliance with its regulatory obligations and other laws. Eircom has access to the entire cost model (including costing data) and the associated assumptions used in the modelling process in determining the current maximum charges. In addition, during the price control period, Eircom should be aware of the actual level of unbundling of operators at large and small exchanges (or at cabinets) as well as the actual length of lines being unbundled by operators at those exchanges. Depending on the actual level of unbundling, Eircom may have an opportunity to charge LLU and SLU monthly rental prices below the maximum charges set by ComReg in this decision which would still allow for the full recovery of the efficient costs of providing LLU/SLU.

11.78 Based on the text set out above, in principle, Eircom can reduce the price for LLU and SLU, provided that any reductions are justified by the Copper Access Model based on proposed changes to the main underlying parameters of the model as set out in ComReg Decision D01/10. Any proposed reductions would also be subject to a ComReg review and subject to Eircom's compliance with its regulatory obligations and other laws, as outlined above.

11.79 Based on presentations to date from Eircom, one point worth considering in the context of NGA is the maximum loop length parameter, which was previously discussed in section 3 of ComReg Decision D01/10. NGA services using VDSL equipment will only be available from much shorter sub loops than the full loops providing broadband using ADSL. Where these sub loops are a lot shorter on average, this may result in a much lower cost of access for NGA broadband services such as VUA, to be recovered by Eircom.

- 11.80 In ComReg Decision D01/10, it was clear that ADSL services would provide basic broadband for up to 5 kilometres. The current maximum LLU price was modelled to reflect this however, the recent pilots/trials run by Eircom suggests that NGA services will only be available for loop lengths within a 1,500 metre radius of their respective cabinets which are upgraded for VDSL. The trials and the initial roll out will determine the actual catchment of the NGA services. However, the Copper Access Model may need to be updated to reflect these new developments to ensure the price of SLU remains appropriate and does not give rise to an excessive SLU price based on the underlying network costs of providing NGA services.
- 11.81 Apart from the consideration above, we believe that the BU-LRAIC plus methodology using the Copper Access Model may continue to be relevant to the copper based LLU (and SLU) products for the time being. However, this will depend on any changes required by Eircom at a retail level given the migration to NGA services in the WBA market, particularly where changes are as a result of constraints from competitors in the retail broadband market.
- 11.82 The SLU price, currently at €10.53, reflects the access cost from the cabinet to the premises. This cost is currently the relevant cost input to the VUA product in the WBA market. SLU and LLU are provided over much the same infrastructure therefore there must be consistency in terms of how the relevant services are priced.
- 11.83 Where a retail constraint could give rise to a margin squeeze along the value chain, then a price reduction should be reflected in the SLU price in the WPNIA market, in the NGA Footprint Areas. In this case, where the SLU price is reduced then we consider that there must be price consistency with the LLU price, where appropriate, using the Copper Access Model. This should also ensure there is no inappropriate discrimination between users using the same asset, as both products share similar infrastructure inputs.
- 11.84 It is important to note that the current maximum price for LLU is based on specific parameters (which are set out in ComReg Decision D01/10) e.g. exchanges with in excess of 2,500 lines are currently used for determining the maximum LLU price for €12.41 however, this parameter is not directly linked to the same SLU cabinets. Therefore, there is not a one for one pricing relationship.
- 11.85 We consider that price consistency between copper and fibre is maintained for now.

- 11.86 As recognised in section 3 of the Oxera Report, this approach would mean that Eircom would not be allowed to price below cost where these are defined as the prices it would charge for the relevant wholesale inputs plus associated expenditure. The price of SLU, and other relevant passive access inputs, set a benchmark for costs underlying any active access, be it a wholesale or retail product.
- 11.87 However, this does not mean that the current BU-LRAIC plus based SLU price should be considered as a price floor. Rather, principles of asset valuation suggest that, in the presence of pricing constraints on the one hand, and where the assets are non-replicable on the other, prices below the BU-LRAIC plus (current-cost accounting) benchmark may be appropriate and consistent with 'cost orientation'.
- 11.88 The BU-LRAIC plus methodology in the Copper Access Model, which was set to incentivise infrastructure investment may be higher than the actual historical costs of the last mile over which NGA services are provided. At some point in the future, it may be necessary for Eircom to revise its wholesale Access prices to reflect this, in the relevant areas, where the assets are not intended to be replaced.
- 11.89 We consider that the actual historical costs incurred together with the relevant depreciation of the last mile plus the appropriate rate of return could still allow the incumbent to recover the cost of its network. The physical infrastructure assets, which are mainly the trenches and ducts and which make up the most significant cost of the last mile, may have a lower annual capital charge in the Regulated Accounts of the incumbent. The initial investment cost may have been substantially recovered and therefore any further recovery may not be warranted unless Eircom plans to substantially replace these trenches and ducts. In such an instance it may be necessary to consider the likely replacement cost where such plans are made available to ComReg.

- 11.90 A recent article from Cullen International¹²⁸ on LLU prices, which show that between December 2000 (the date of adoption the LLU Regulation) and December 2011, the simple EU-15 average of monthly rates for physical access fell by 33% (from €13.40 to €8.96). The article however highlights that the key issue for debate now is whether higher or lower wholesale charges for access to copper networks would be more conducive to future fibre investment to reach the broadband targets set in the Digital Agenda for Europe. In the article, Cullen also remind us of the views of the European Commission; in a network where the assets are largely or fully depreciated, using a CCA BU-LRIC approach for pricing access to the local loop could lead to over-compensation of the investments made in copper lines.
- 11.91 We consider as different elements of the fixed access network have different characteristics this may justify a different valuation approach, i.e. an approach for trenches and ducts and an approach for cables placed in the ducts. In certain areas, using the BU-LRAIC plus methodology in the long term for the valuation of trenches and ducts of Eircom may lead to unsustainable wholesale prices where retail price constraints do not allow for the recovery of these wholesale prices or where competitors can sell similar services cheaper over their own infrastructure. Where the methodology imposed by regulatory decisions gives rise to such a situation then we consider that the methodology may need to be flexible to ensure access prices can change, in relevant areas, while at the same time ensuring that Eircom complies with its obligations imposed in previous Decisions.
- 11.92 In any event, a change to the underlying asset valuation methodology for determining LLU and SLU prices would need to be considered in detail and may require a separate consultation.
- 11.93 For now, we propose to introduce a further price ceiling for SLU (and LLU) in the NGA Footprint areas which may be calculated by reference to the price of VUA adjusted for the costs that an entrant operator using SLU would incur to provide VUA based on the NGA Margin Squeeze Model, which is discussed in detail later in this section. This may be required in order to ensure a sufficient economic space between VUA and SLU in line with the NGA Margin Squeeze Model.
- 11.94 We consider that for the SLU monthly rental charges in the NGA Footprint Areas, Eircom may offer the lower of either:

¹²⁸ Article entitled "Cullen International publishes time series on monthly rental fees for unbundled physical access"; dated 26 March 2012.

- The maximum charge, as set out in ComReg Decision No D01/10 or as amended based on changes by Eircom to the underlying parameter(s) of the Copper Access Model as set out in ComReg Decision D01/10. This would require a review by ComReg.
- or
- The revised charge derived by the application of the margin squeeze test between the VUA monthly charge and the SLU monthly charge based on the NGA Margin Squeeze Model.
- 11.95 Where the SLU price is reduced in either of the two cases above, Eircom would be required to ensure price consistency and to amend the LLU price where appropriate, using the Copper Access Model, in the NGA Footprint Areas.
- 11.96 LLU, and in the short term Line Share over WLR, over the existing copper network will remain as relevant wholesale products nationally, until such time as significant rollout to the potential NGA Footprint Areas has taken place. It is assumed in this consultation that those OAOs using the Line Share product to date will move to full unbundling in the short term. However, as Eircom is proposing to offer a copper based voice service over the NGA broadband connection, subsection 11.6.3 of this paper discusses possible options during the transition.
- 11.97 Price consistency between SLU and LLU is important. As recognised in Section 3 of the Oxera Report, if the relative price for LLU and VUA are not consistent, OAOs' and end consumers' decisions will be distorted. For example, if the LLU price is too low then OAOs and end-consumers will have limited incentives to migrate to the NGA solution.
- 11.98 If the LLU price is too high relative to the corresponding NGA products, OAOs have incentives to migrate; nevertheless, this carries the risk that the current LLU investments do not receive sufficient remuneration over the asset lifetime (which is relatively short) and/or OAOs and retail consumers served over copper may be discriminated against where they are charged a higher price for the same underlying copper path.
- 11.99 Given that ComReg's regulatory policy to date has been to promote Line Share and full unbundling it would seem reasonable that this continues for now. The flexibility being afforded in respect of NGA pricing is also made possible to some degree by pricing constraints arising from current generation products and it is important that this continues.

- 11.100 We are of the preliminary view that it is important to maintain consistency, where appropriate, between copper and fibre based access prices for now. We regard NGA and copper based services as being chain substitutes. There is no reason to suppose that any competitive pressures that impact on NGA pricing do not also affect legacy services. If the value of Eircom's network has fallen because of recession and competition then that reduction will have affected all services. This should be reflected in all access prices on a consistent basis.
- 11.101 Furthermore, a failure to provide certainty about the future of copper based access services would be very likely to hamper investment by entrants. The main reason being that since they may decide not to proceed with copper based investment while not being able to invest in fibre based services in any meaningful way because the network is not yet built and wholesale access services not yet tested. An interruption in investment and a reduction in the competitive intensity of the market is a very real possibility.
- 11.102 On the other hand, in the medium to long term it would be inefficient to maintain both copper and access networks in parallel in the NGA Footprint Areas. A further consideration is that EU policy is to target a take up rate of 50% by population of broadband services in excess of 100mb/s by 2020. These considerations suggest that it may be appropriate to encourage users to migrate to fibre based services. One obvious way to achieve this is by means of pricing incentives. This could be done simply by allowing Eircom to break the link between copper and fibre based access pricing.
- 11.103 We believe that an approach that maintains investment and competition now with a transparent migration path to NGA infrastructure in the future is appropriate. We invite views from respondents as to how this path should be constructed. In particular, we seek views as to whether it is appropriate to maintain the consistency of copper and access pricing for now: how long this policy should continue and what triggers might be considered to introduce pricing incentives for migration to NGA.
- 11.104 Our view therefore is that it is important that Eircom continue to provide LLU and Line share at this time. This is also relevant to WLR which is the key facilitator of the main alternative access product today - Line Share.

Unbundled access to the fibre loop (or FTTH):

- 11.105 We consider that the cost orientation obligation should be applied in the context of unbundled access to the fibre loop. With regard to FTTH, we are cognisant of Regulation 13(2) of the Access Regulations, which states that to encourage investments by the operator, including in next generation networks, ComReg shall when considering the imposition of obligations in relation to price control and cost accounting take into account the investment made by the

operator which ComReg 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.

11.106 Paragraph 25 of the NGA Recommendation states that:

"The price of access to the unbundled fibre loop should be cost-oriented ..."

11.107 The wholesale costs for fibre loop unbundling in the case of FTTH are similar to the costs already determined in the Copper Access Model for copper based LLU, as determined in ComReg Decision D01/10. One exception to this is where the cost of the copper lines in the current model should be replaced by the cost of the fibre lines.

11.108 We consider that the Copper Access Model for LLU is relevant for unbundled fibre loops given that the same trenches and ducts are used for both copper and fibre lines. Eircom should charge no more than the maximum prices set for LLU in the context of FTTH while adjusting for the cost of fibre lines as opposed to copper lines. In addition, we consider that it is open to Eircom to offer different prices from different exchange areas if appropriate or if required by the margin squeeze tests.

11.109 The NGA Recommendation states that:

When setting access prices to the unbundled fibre loop, NRAs should include a higher risk premium to reflect any additional and quantifiable investment risk incurred by the SMP operator¹²⁹.

11.110 We consider that for the moment given the likely insignificant coverage of FTTH that we will revisit whether a risk premium is warranted if demand materialises significantly over the price control period. We would also consider reasonable proposals for Eircom in that regard.

Civil engineering infrastructure (including duct and pole access):

11.111 The cost orientation obligation will apply in relation to the various components within civil engineering infrastructure. The most significant element – duct access is discussed in some detail below.

11.112 For civil engineering access, we consider that the prices should be consistent with the cost orientation obligation and this is in line with the European Commission's NGA Recommendation where it specifies that:

¹²⁹ Annex 1, Part 4 of the NGA Recommendation.

"NRAs should ensure that access to existing civil engineering infrastructure is provided at cost-oriented prices in accordance with Annex 1¹³⁰".

11.113 Annex 1 of the NGA Recommendation further specifies that:

"NRAs should regulate access prices to civil engineering infrastructure consistently with the methodology used for pricing access to the unbundled local copper loop. NRAs should ensure that access prices reflect the costs effectively borne by the SMP operator. NRAs should in particular take into account actual lifetimes of the relevant infrastructure and possible deployment economies of the SMP operator. Access prices should capture the proper value of the infrastructure concerned, including its depreciation.

When setting the price for access to civil engineering infrastructure, NRAs should not consider the risk profile to be different from that of copper infrastructure, except where the SMP operator had to incur specific civil engineering costs — beyond the normal maintenance costs — to deploy an NGA network".

11.114 In the Copper Access Model for LLU, ducts and trenches are valued based on the BU-LRAIC plus methodology. However, as already discussed above at some point in the future we may review the underlying methodologies in the Copper Access Model to assess whether the current methodologies remain relevant or whether they should be revised going forward.

11.115 In the context of this consultation we consider that because the basic infrastructure of ducts, trenches and poles are non-replicable, Eircom should recover only the actual costs incurred. This implies the use of historical costs taking account of any actual incremental costs associated with remediation and on-going maintenance together with a rate of return.

11.116 The HCA plus remediation basis (or renewals accounting but referred to in this section simply as "HCA") for duct access is also supported by Oxera, where it sets out, in section 3 of its report, that assets that are unlikely to be replicated, such as duct, could be based on an alternative valuation approaches - such as HCA/renewal accounting.

¹³⁰ Paragraph 14 of the NGA Recommendation.

- 11.117 Any incremental costs associated with remediation and on-going maintenance should be based on actual or forecast costs. In the case where the specific trenches and ducts accessed by the OAO is fully written off in Eircom's financial statements, then it may be necessary to consider an alternative pricing mechanism. It would not be expected that Eircom would provide access to the basic infrastructure for free. However, we consider that this situation is likely to be the exception rather than the norm and should be dealt with on a case by case basis.
- 11.118 We consider that where a request for civil engineering access is made by an operator, that Eircom should negotiate a reasonable rate per metre (or similar mechanism agreeable to both parties) of access. However, Eircom must ensure that it does not price discriminate between operators by virtue of an operators size in the context of the regulatory access price it charges. In addition, Eircom must ensure that the charges negotiated are in the main reflective of cost, as discussed above.
- 11.119 Eircom should make best efforts to successfully conclude such negotiations in a timely manner but where the negotiation process is not concluded successfully, ComReg should intervene to set the relevant price of civil engineering access on a case by case basis, based on depreciated historic costs plus the cost of remediation together with a rate of return. We consider that a time period of no more than three months seems reasonable for negotiation purposes.
- 11.120 We recognise that pricing of civil engineering access will probably vary from location to location and that a single national price list may be difficult to achieve. Given the bespoke nature of this form of access it would be preferable if regulatory intervention was not the default procedure.
- 11.121 In the event that there were a public tender for duct access, then we may revisit the possibility that duct access prices may need to be published, by Eircom. However, this will depend on the circumstances of any such tender and detailed consideration of ensuring the least market distortion occurs.
- 11.122 In cases where Eircom can demonstrate that there is no duct capacity, we or an independent expert may assess that claim. If the outcome of the review shows that there is, in fact, spare duct capacity, then Eircom should be required to reimburse the relevant access seeker to the monetary value of the amount of needless time spent on the request for access. This might include any out of pocket expenses, material internal legal/regulatory time spent on the request etc.

11.123 We acknowledge that the use of historic costs in this context is not consistent with the valuation methodology for LLU where BU-LRAIC plus is used. Our reasoning for BU-LRAIC plus was originally justified as a means to promote independent platform competition. However, where it is clear that no infrastructure will be built/replicated it may be difficult to justify continuation of the BU-LRAIC plus methodology, in the long term, which may in fact artificially increase prices. We invite respondents' views on this point. However, at some point in the future we will revisit the underlying methodologies used for determining access prices. This may be subject to a separate consultation process.

Dark Fibre:

11.124 Where it is clear that civil engineering access cannot be provided, or where such access is economic, dark fibre should be made available to operators where it is reasonably available. The explanation of “reasonably” in this context is provided in Section 5 above.

11.125 Dark fibre should be priced at current cost for the fibre element plus depreciated historic costs for the applicable civil engineering access element. We are of the view that since fibre is being installed in the access network at the moment that its historic cost is not relevant and current cost should apply in line with the principle of replicability. This is supported by Oxera in Section 3 of the Oxera Report.

SLU Backhaul costs:

11.126 We propose that the costs for SLU Backhaul should be priced on a basis consistent with the prevailing methodology for the Copper Access Model for LLU in ComReg Decision D01/10. The Copper Access Model has also been used as the basis for pricing backhaul in the leased lines decision in ComReg Decision D01/12¹³¹.

Migrations:

11.127 Migration charges in the WPNIA market and the WBA market are discussed in subsection 11.9 below.

¹³¹ Response to Consultation Document No 11/32 and Final Decision (D01/12) on Further Specification of the Price Control obligation in the Wholesale market for terminating segments of Leased Lines; dated 2 February 2012.

Fault repair:

11.128 We consider that all fault repair charges in the context of NGA should also be cost oriented and should not be unduly discriminatory. We have discussed the options for the recovery of the fault repair charges later in this section.

ComReg's preliminary conclusions:

11.129 Eircom will be obliged to comply with the cost orientation obligation for the NGA access products mandated in the WPNIA market as described below.

11.130 In order to avoid a margin squeeze, for the SLU monthly rental charges in the NGA footprint areas, Eircom may offer the lower of either:

- The maximum prices in line with ComReg Decision D01/10 or as amended based on changes by Eircom to the underlying parameter(s) of the Copper Access Model as set out in ComReg Decision D01/10. This would require a review by ComReg.

or

- The revised charge derived by the application of the margin squeeze test between the VUA monthly charge and the SLU monthly charge based on the NGA Margin Squeeze Model.

11.131 Where the SLU price is reduced, Eircom will be required to ensure price consistency with the LLU price and to amend the LLU price where appropriate, using the Copper Access Model, in the NGA Footprint Areas.

11.132 The link between copper and fibre based pricing should be maintained. ComReg invites views as to how long this policy should be maintained for and what triggers, if any, should be considered in a change of policy i.e. to allow Eircom to price NGA services independently of copper.

11.133 For civil engineering infrastructure, including duct and pole access, Eircom will base its charges on depreciated historic costs plus any incremental costs associated with remediation and on-going maintenance together with a rate of return.

11.134 For dark fibre, Eircom will base its charges at current cost for the fibre element plus depreciated historical costs for the applicable civil engineering access element.

11.135 For unbundled fibre in the case of FTTH, Eircom will use the Copper Access Model where the charge should be no more than the current maximum charge for LLU adjusted for the cost of fibre optic cable as opposed to copper cables.

11.136 For the costs for SLU Backhaul, Eircom will ensure that these costs are recovered based on the methodology in the Copper Access Model in ComReg Decision D01/10, which may be amended from time to time.

11.137 For fault repair costs, Eircom will ensure that these charges are cost oriented.

Q. 19 Do you agree with ComReg's preliminary views, as set out above, on the appropriate form of price regulation in the context of NGA in the WPNIA market? Please provide reasons for your response.

Q. 20 Do you agree whether the underlying network costs of providing NGA based services using SLU are likely to be much lower than the network costs of providing current generation services due to the likely geographic coverage of NGA based services? Please provide reasons for your response.

Q. 21 Do you believe that the cost base for ducts and trenches should be amended to a HCA basis in the context of mandated civil engineering infrastructure? Please provide reasons for your response.

Q. 22 Do you believe that the link between copper and fibre based services should be maintained during the transition? Or should migration to fibre be encouraged by way of differential pricing after a certain period of time. If the latter, how long should this period be and what triggers for a change should be considered? Please provide reasons for your response.

11.5.2 Cost orientation – WBA Market

11.138 ComReg has not to date imposed a cost orientation obligation in the WBA market.

11.139 The basic premise of any cost orientation obligation is to ensure that a regulated entity recovers no more than its efficiently incurred costs and recovers a regulated rate of return on invested capital. This approach is particularly suitable where there is a potential competition problem of excessive pricing of services based on a current generation bottleneck of assets. In addition, a cost plus approach is also suitable where there is reliable information about the likely cost and demand profiles where one can easily calculate a reliable unit cost. The precise type of cost to be applied in the context of NGA will be influenced by a consideration as to whether the assets in question are replicable i.e. whether entry of alternative platform based competition is feasible. An example of the application of these considerations is where ComReg imposed a cost orientation obligation based on a BU-LRAIC plus for LLU services in 2010 (ComReg Decision D01/10). This pricing approach was used to incentivise potential entry by alternative platforms e.g. cable operators or wireless operators.

11.140 The basis for not adopting a cost orientation obligation in the WBA market to date was to permit entry using the WBA services but to provide an incentive for more infrastructure intensive entry via WPNIA services such as LLU. It seems to us that many of the same considerations still apply. This is why we consider that a cost orientation obligation is relevant for NGA products and services in the WPNIA market, such as civil engineering access. Given the fact that platform entry has occurred by the presence of cable operators we are also of the view that we may at some point in the future consider whether the BU-LRAIC plus methodology is still relevant for LLU based services. This has already been discussed above in the context of SLU.

11.141 In the WBA market there are a number of considerations in the context of NGA pricing which are as follows:

- WBA services are likely to be the predominant mode of entry in an NGA context. In the WPNIA market neither SLU nor civil engineering access – both of which have been mandated for some time - have ever been used to any great extent. Service based entry is more likely and we are proposing to mandate a virtual access (VUA) product to facilitate this form of market access.

- The demand profile for NGA services is not well understood at this point in time. This makes volume forecasting more difficult but, more importantly, this may increase the investment risk to the incumbent. This is noted in the European Commission's NGA Recommendation:

"NRAs should estimate investment risk, inter alia, by taking into account the following factors of uncertainty: (i) uncertainty relating to retail and wholesale demand¹³²;".

- The cable operator, UPC, has made progress in the retail broadband market in urban areas in recent times. This may point to a lessening concern at the retail level, where cable is present.
- On the other hand these observations do not eliminate the concern about excessive pricing and constructive refusal to supply at the wholesale level; In its WPNIA Market Decision (ComReg Decision D05/10), ComReg found that cable should not be included in the wholesale market for reasons which are set out in that paper. Furthermore, while volumes of LLU have increased in the past 18 months overall volumes have recently stabilised at a relatively low level of approximately 61k¹³³. It is our view that opportunities and incentives to price excessively at the wholesale level would persist, absent a retail or wholesale constraint from cable and/or LLU/Line share and indeed without appropriate pricing measures in place.

11.142 We consider however that retail margin squeeze test in the WBA market remains relevant so long as SLU remains in place. However, where SLU is removed we consider that a possible move towards cost based floors in the WBA market may be appropriate. However, we would assess this possibility if and where it arises and we would consult with industry where appropriate.

11.143 For now we propose to allow Eircom pricing freedom for NGA services to allow it to explore what price levels are appropriate to recover its risk adjusted rate of return empirically. In this draft Decision we allow for entry in the WBA Market with reference to the cost outputs from the NGA Margin Squeeze Model. The corollary of this approach is that all wholesale prices – including those in the WPNIA market - must be set at a level that ensures users of these services are not squeezed out of the market by excessively low prices at the retail level or in the WBA market and that access to NGA services are provided to the standard outlined by the proposed measure for non-discrimination.

¹³² Annex1, Part 6 of the NGA Recommendation.

¹³³ ComReg Quarterly Key Data Report - Data as of Q3 2011; ComReg Document No 11/98 and dated 9 December 2011.

- 11.144 We are of the view that this approach, while not without its risks in terms of excessive pricing, is justifiable in circumstances where UPC's share of the retail market in urban areas (i.e. those areas where NGA is likely to be rolled out) is increasing, and there is the potential for a pricing constraint to be exercised by LLU based competition over traditional copper. We believe that our approach is also consistent with Regulation 13(1) of the Access Regulations, which states that where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessive level or may apply a price squeeze to the detriment of end-users, ComReg may impose obligations relating to cost recovery and price controls.
- 11.145 This approach can only be justified by the maintenance of copper as a viable form of access in the short term. If pricing or access rules were relaxed so as to encourage the closure of the copper access network and migration to NGA the basis for remaining with the proposed approach may need to be re-examined.
- 11.146 Given the importance of facilitating competitive access, the provision of these services needs to be delivered for new NGA products and services to the standard of EoI, or EoO where justifiable.
- 11.147 It also follows that it may be appropriate to review this methodology after a period of time when the investment risk profile and demand conditions are better understood. It is too soon to put a precise date on this but a review may be necessary two or three years after launch. In any event we will continue to monitor the market during the price control period.
- 11.148 In addition to the margin squeeze tests above, we consider that a cross-check to the relevant regulated prices (and associated models) used in the margin squeeze model should be carried out to ensure that prices are not below (or substantially above) the relevant costs. This cross-check is important to assess the approximate cost stack at a wholesale level - based on existing current generation prices and associated costs models e.g. the Copper Access Model and the Leased Lines model. We consider that this cross check should ensure consistency across regulated access products and ensures consistency with the NGA Recommendation.
- 11.149 We consider that we have taken utmost account of Recital 37 of the NGA Recommendation which states that:

"Where ex ante price regulation is applied, wholesale bitstream access prices should be derived by means of cost-orientation. NRAs could use other appropriate price control methodologies including, e.g. retail-minus, where there are sufficient competitive constraints on the downstream retail arm of the SMP operator. NRAs should set different prices for different bitstream products to the extent that such price differences can be justified by the underlying costs of service provision so as to enable all operators to benefit from sustained price differentiation at both wholesale and retail levels. The risk incurred by the SMP operator should be duly taken into account in setting the access price".

- 11.150 We have more recently consulted on moving to a cost based control for legacy Bitstream in ComReg Document No 10/56 and Document No 10/108. In December 2010, we specified what we believe is an appropriate margin squeeze test to ensure an appropriate economic space is maintained between wholesale current generation services sold by Eircom. The European Commission issued a "No Comments"¹³⁴ letter on 20 March 2012 regarding the appropriate price cost floors which we plan to publish shortly.
- 11.151 A subsequent consultation is planned for later in 2012, which would set out an appropriate price control to ensure that current generation Bitstream prices are not excessive, particularly in areas where there is no alternative to Eircom's network for fixed Broadband services.

ComReg's preliminary conclusions:

- 11.152 A cost orientation obligation is not deemed appropriate for now in the context of NGA rollout in the WBA market.
- 11.153 Eircom will be obliged to comply with a retail margin squeeze test based on ComReg Decision D01/06 as amended by this decision.
- 11.154 In addition, Eircom will be obliged not to create a margin squeeze between the relevant wholesale NGA products both within the WBA market and from the WBA market to the equivalent access product in the WPNIA market. This is described below.

Q. 23 Do you agree with ComReg's preliminary view that a cost orientation obligation is not deemed appropriate for now in the context of the NGA rollout in the WBA market? Please provide reasons for your response.

¹³⁴ IE-2012-1295 at <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>

11.5.3 Margin Squeeze tests

11.155 Before discussing the proposed margin squeeze tests, it is important to understand the relevance of these tests in terms of achieving ComReg's regulatory objectives.

11.156 Competitive outcomes are a key to consumer welfare as they promote innovation and/or lower prices. But, in economic sectors characterised by high fixed cost, such as the telecoms sector, incumbents, often former State monopolies, may benefit from a long lasting "first mover" advantage, based on their monopoly position on some network infrastructures. This can lead to high barriers for other potential entrants (incapable of duplicating these infrastructures) and resulting in a low competitive pressure in the absence of regulation.

11.157 In this context, the NRA's objective is to encourage one or both of the following:

- Infrastructure-based competition, whereby operators are incentivised to invest in infrastructure and fully compete on both the infrastructure access market (upstream or wholesale market) and on services delivered through infrastructure (downstream or retail market); or
- Service-based competition, whereby service providers have an equal and non discriminatory access to a unique monopolised infrastructure, which is considered an essential facility and required to offer services in order to compete on the retail market.

11.158 We consider that supporting infrastructure-based competition is preferable for two reasons:

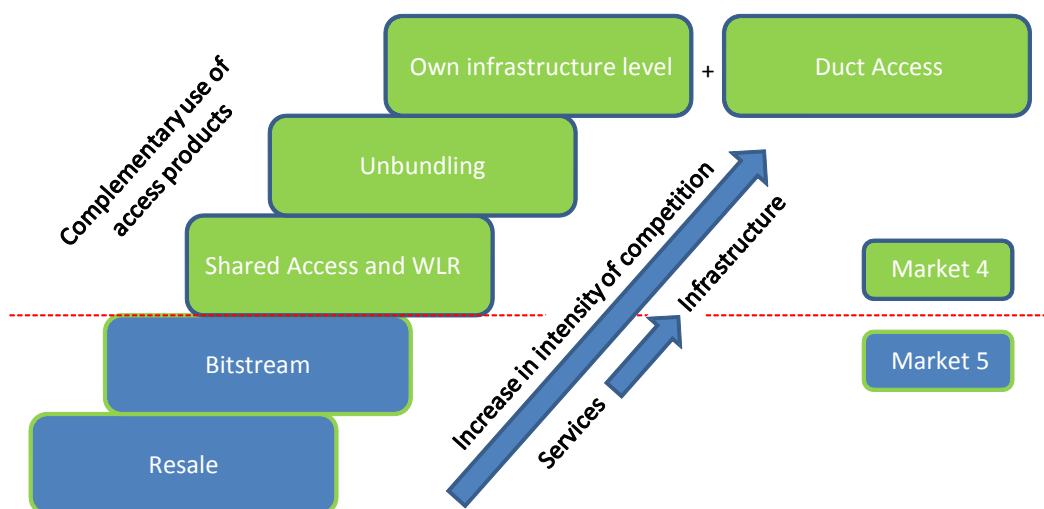
- Service-based competition is dependent on technological choices made by the incumbent and where the alternative operator does not invest in their own infrastructure.
- Infrastructure-based competition has the advantage of progressively suppressing monopolies and, thus, of limiting controls, with a transfer from ex-ante to ex-post regulations.

11.159 In the communications sector, barriers to entry based on infrastructure are high since this entails a large amount of upfront network roll out with an uncertain return in the face of an incumbent. In Europe this problem has led to an approach which favours the “ladder of investment”. This is where regulators have mandated access to incumbent networks using both infrastructure and service based models. At an early stage of their development, entrants can use service based models of entry as these have lower barriers to entry. If they are successful and achieve adequate scale they can migrate to more infrastructure intensive modes of access such as unbundling. Of course entrants can bypass the incumbent altogether, as UPC has done, however UPC itself has a considerable advantage as a former state owned monopoly supplier of cable television services. It is highly unlikely that this model could be replicated by another operator.

11.160 The graph below shows the different rungs of the investment ladder. This model is applicable to both current generation and next generation products and services. When an alternative operator ascends the rungs of the ladder, it will be in a position to progressively invest more in its own infrastructure and therefore promote competition at the deepest level of infrastructure where it will be effective and sustainable.

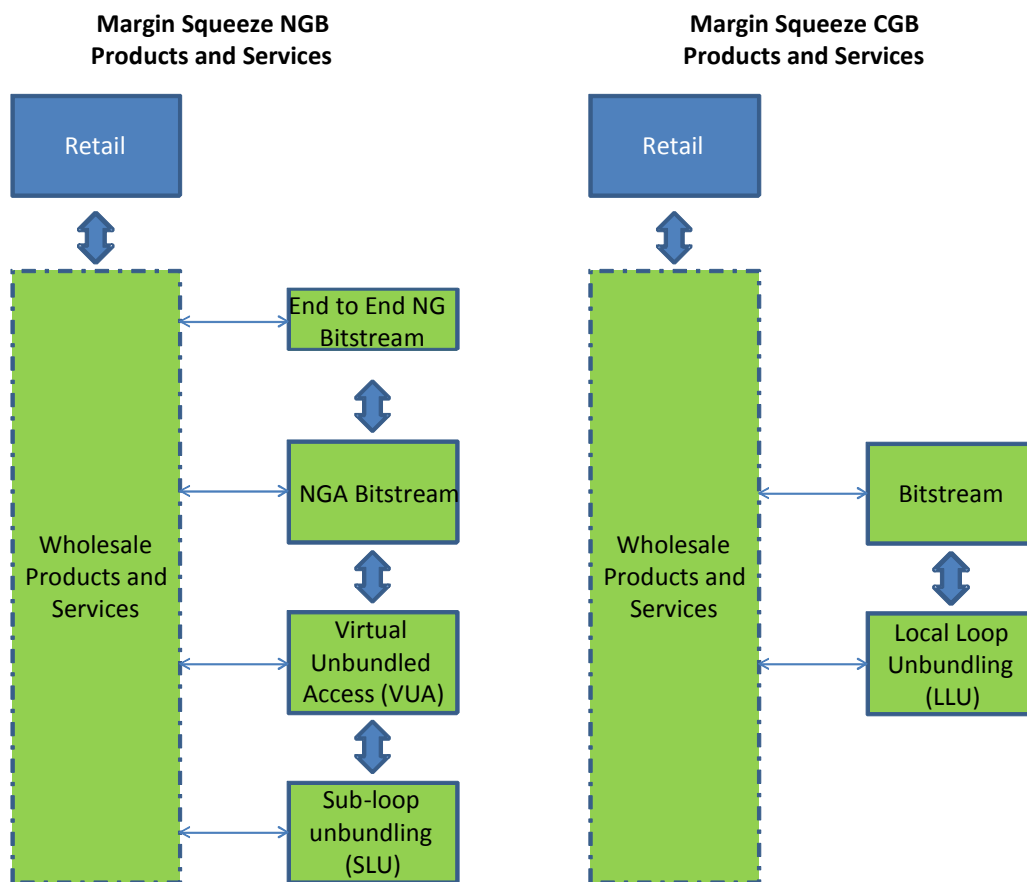
11.161 The margin squeeze principles that we consider later in this section need to take account of this objective.

Figure 6: Illustration of the Ladder of Investment

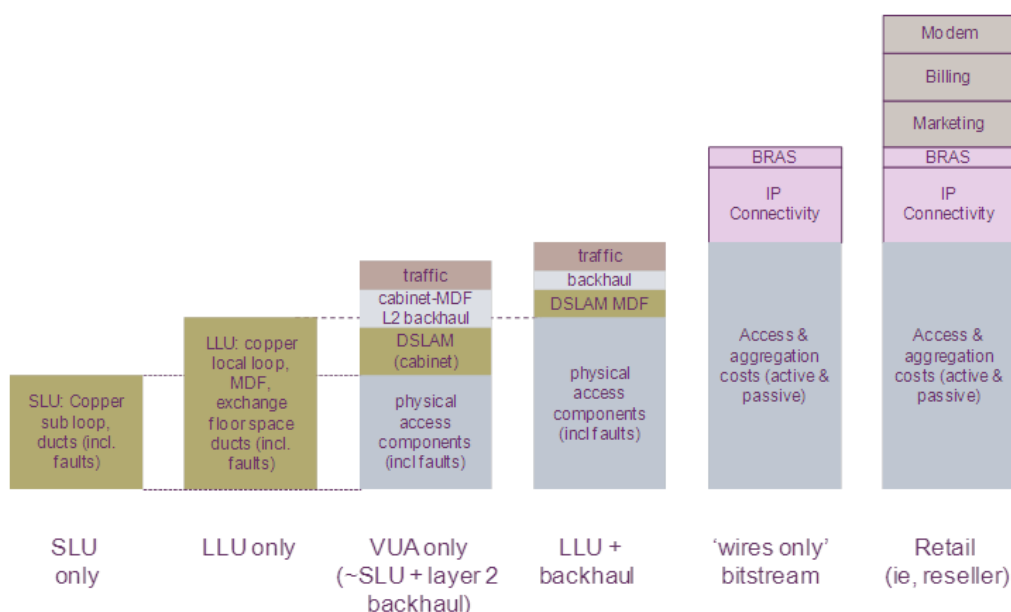


11.162 We consider that the margin squeeze tests should be applied consistently across the different access products. Given that legacy broadband and next-generation broadband are substitutes and for the reasons set out above, they should not be treated separately. Legacy copper based services should not be squeezed by NGA based services at least in the interim. This is illustrated in Figure 7 both in the context of next generation and the current generation products/services.

Figure 7: Illustration of Margin Squeeze tests between Current and Next Generation Services



11.163 In the context of the wholesale products in the WBA market it is necessary to ensure that there is sufficient economic space between the relevant products across the supply chain or the ladder of investment. The economic space is assessed with respect to all relevant active and passive wholesale inputs. The impact of specific assumptions depends on the specific cost elements associated with each incremental “rung” on the ladder of investment. This is further illustrated in the diagram below.



Source: Oxera

11.164 More generally, if the price of one downstream wholesale product is too low compared to that of the upstream one, all operators will choose in the short term the downstream product to be able to compete. In fact, the OAO building a network will not be able to compete with the one choosing the downstream product and will therefore be excluded from the market. While it might be positive for competition in the short term, in the long term it maintains an OAOs dependence on the incumbent’s infrastructure. Where OAOs cannot differentiate from the incumbent, they have no incentives to develop their own infrastructure, with a limited potential in terms of innovation to the benefit of end users. This would not be consistent with ComReg’s regulatory objective to promote efficient investment and sustainable competition or with Regulation 13(3) of the Access Regulations which states that ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits.

11.165 In order to promote efficient investment, assessing the existence of margin squeezes between retail and wholesale offers is not sufficient. The existence of an investment incentive must be assessed against any potential margin squeeze between the available wholesale offers.

11.166 The ERG¹³⁵ has also confirmed this view, underlining that the existence of margin squeezes have to be monitored both between retail and wholesale products and between wholesale products:

¹³⁵ ERG Document No (09) 17: Report on Next Generation Access – Economic Analysis and Regulatory Principles; June 2009.

“Furthermore, it is important to have a consistent application of costing methodologies and pricing principles across different wholesale products as otherwise margin squeeze situations or inefficient entry may occur. This applies equally between wholesale products as well as between wholesale and retail products.”¹³⁶

11.167 The goal of the margin squeeze tests is therefore:

- To facilitate the entry of operators with their own network where feasible by ensuring that they will not be squeezed by competitors with no network, buying the resale offer.
- To verify that the price of wholesale upstream products bought by operators having their own network will not be squeezed by the SMP operator itself, which means that the test should also apply between upstream wholesale products and to any self-supply resale products of the incumbent.

11.168 Therefore, we consider that there are two principle margin squeeze tests that are necessary in the context of NGA, these are as follows:

- A margin squeeze test to assess the appropriate economic space between the retail and the wholesale NGA Bitstream product (and End-to-end Next Generation Bitstream where it is provided); and
- A margin squeeze test to assess the appropriate economic space between the wholesale products in the WBA market and from the WBA market to the equivalent wholesale access product in the WPNIA market.

11.169 These are discussed in turn below.

http://erg.eu.int/doc/publications/erg_09_17_nga_economic_analysis_regulatory_principles_report_090603_v1.pdf

¹³⁶ Section D.3.1 Page15. The ERG considers that conducting a margin squeeze test between bitstream and LLU should be considered as a best practice by regulators: “It is best practice for NRAs to ensure that WLA ⇔ WBA economic space would be: Wide enough so as to avoid eviction prices and not hinder competitors investments in LLU in alternative infrastructure by artificially restraining LLU extension; Not too wide in order to avoid excessive pricing in the retail market especially in underserved areas.”

11.5.4 Margin squeeze test between retail and wholesale NGA Bitstream (and End-to-end Next Generation Bitstream where it is provided)

Overview

- 11.170 The proposed retail margin squeeze test in the WBA market requires that there is sufficient economic space between the price of the regulated wholesale NGA Bitstream product (and End-to-end Next Generation Bitstream where it is provided) and the prices across the portfolio of relevant retail standalone broadband products to allow the necessary additional costs of providing the downstream product to be covered. The retail margin squeeze test should apply within all geographic areas where NGA networks are deployed (FTTC/FTTH) – NGA Footprint Areas.
- 11.171 For clarity, the End-to-end Next Generation Bitstream product is the end-to-end resale, Next Generation Bitstream product which allows the Access Seeker to purchase Next Generation WBA without the need to have its own infrastructure for example Backhaul and ISP services. Some operators will opt for this service rather than the NGA Bitstream and therefore the retail test takes account of both options. Similar to ComReg's Decision¹³⁷ on Wholesale Switchless Voice ("SV") product, sold as "White Label Voice" by Eircom, the key underlying wholesale inputs of this End-to-end service are regulated. However, the provision of the End-to-end product itself is not regulated.
- 11.172 In addition to the retail margin squeeze test, we consider that a cross-check to the relevant regulated prices (and associated model) used in the margin squeeze model should be carried out to ensure that prices are not below (or substantially above) the relevant costs. This cross-check is important to assess the approximate cost stack at a wholesale level - either based on existing current generation prices and associated costs models or as these cost models is amended by ComReg from time to time. This should ensure consistency across regulated access products and also with the NGA Recommendation.
- 11.173 Eircom in its response, to the First NGA Consultation, stated that prices should be set on a retail-minus basis.

¹³⁷ ComReg Document No 11/67 (ComReg Decision No D07/11) Wholesale call origination and wholesale call termination market; Response to Consultation Document No 10/76 and decisions amending the price control obligation and withdrawing and further specifying the transparency obligations; dated 15 September 2011.

- 11.174 Among the various responses received, BT in its response to the First NGA Consultation noted that there may be a potential issue of existing current generation prices in the context of wholesale inputs. In summary, BT noted that it recognised the pressure Eircom Retail faces competing with companies such as UPC. Consequently, BT suggested that Eircom would have to reduce their cost base at all levels including LLU to improve their ability to compete. BT suggested that Eircom should select an 'anchor' price such as LLU as a building block to develop its pricing strategy. BT believed that this should enable existing competition to be maintained whilst factoring in an NGA premium and avoiding margin/price squeeze issues. If the anchor price is too high then Eircom would have to reduce internal costs to ensure it complies with a margin squeeze test. BT's concerns are addressed in preceding sections.
- 11.175 Vodafone considered it essential that an ex-ante margin squeeze test is imposed by ComReg on the vertically integrated SMP operator in addition to cost oriented price controls for the various forms of regulated wholesale access. Magnet stated that ex-ante price control were imperative in this context and that commercial negotiation should be used initially and subsequently regulation. E-net stated that it should be for ComReg to decide which is the most appropriate methodology to apply for NGA services and, in doing so, it will be important that ComReg ensures the regulated access price is set at a level that encourages investment in NGA infrastructure, while at the same time ensuring that access seekers face fair prices for wholesale NGA services.
- 11.176 For the reasons already discussed in this section of the document, we consider that the retail margin squeeze test is the most appropriate approach to adopt at least initially.
- 11.177 The proposed retail margin squeeze test in this context differs somewhat to the retail margin squeeze test currently in place under ComReg Decision D01/06.
- 11.178 Under ComReg Decision D01/06 the retail margin squeeze test involves assessment of the margin between the prices of each of the regulated wholesale products to the corresponding retail products. However, in this context the retail margin squeeze test assesses the economic space between the retail price or prices (in the case of a portfolio of products) for a standalone retail broadband product(s); and the price for Next Generation Bitstream (and End-to-End Next Generation Bitstream where it is provided).

Notifications and compliance with the retail margin squeeze test

- 11.179 In general, Eircom will be obliged to comply with the obligations set out in ComReg Decision D01/06 for the retail margin squeeze test. We consider that a number of minor amendments are relevant and these are set out in subsection 11.4.3 above. One of the main changes proposed to ComReg Decision D01/06 relates to the extent to which Eircom must provide a statement of compliance. We are proposing in this draft decision that Eircom will only provide a statement of compliance for NGA standalone broadband retail prices where they are likely to have a material impact on the market place. We consider that "material" means a new or existing retail broadband product which represents or is likely to represent the lower of either (i) 20% of Eircom's Next Generation retail customer base, in terms of subscriber numbers or (ii) 20,000 new retail subscribers for Eircom's next generation services. We believe that this amendment should ensure that the obligations on Eircom are less burdensome in the context of NGA retail prices.
- 11.180 In addition, to the obligations from ComReg Decision D01/06 we also consider that the following additional obligations should apply in the context of this draft decision instrument.
- 1) Eircom will be required to pre-notify ComReg of all NGA retail prices for new and existing retail standalone broadband NGA products 15 working days before the new (or revised) prices are expected to come into effect. We consider that email communication should be a sufficient form of notification in this regard.
 - 2) Within one year from the effective date of this decision and annually thereafter, Eircom will be required to provide a statement of compliance to ComReg demonstrating its compliance with the retail margin squeeze test in the NGA Margin Squeeze Model, which will be provided to Eircom. The statement of compliance will include detailed supporting information, disclosure of all material facts and stating precisely how Eircom is in compliance with the obligations and a demonstration of how any adjustments to the price of the equivalent wholesale offering of a new or existing product would be in compliance with the obligations. Within 15 working days after receiving the statement of compliance we will assess the information and decide whether we will issue Eircom with an opinion on the statement of compliance or a conditional written confirmation, whether we require further information for our assessment, whether we will inform Eircom that the amendment is not in compliance with the obligations or issue a direction or directions to refrain from implementing the change (or making the new wholesale equivalent offer available).

- 11.181 In any event, we will continue to monitor Eircom's compliance with the NGA Margin Squeeze Model on an ongoing basis throughout the price control period.
- 11.182 We believe that the notification and compliance obligations are relevant for regulating the retail margin squeeze test in the context of NGA, given the flexibility that Eircom will have for setting retail prices. These obligations are largely consistent with the procedures under ComReg Decision D01/06 which have been in place for a number of years. We are proposing to lessen the burden on Eircom where it will only be required to provide a statement of compliance for NGA retail prices where they are likely to have a material impact on the market place. In addition, we are proposing that all pre-notifications for NGA standalone retail broadband prices are communicated to ComReg by email, which should not be overly burdensome. We consider that these notification obligations should ensure that there is less likelihood of issues of non-compliance and potential withdrawal of services, at a later date.

Bundles

- 11.183 For retail bundles, Eircom will be required to ensure consistency with the principles determined by this consultation (and any final decision) regarding next generation services and by any potential decision regarding ComReg Document No 11/72 for current generation services. In line with the principles to be determined by any potential decision regarding the bundles consultation, Eircom will be obliged to ensure it adheres to its notification procedures for the prior launch of any bundles that include Narrowband Access. This will be relevant in the context of the margin squeeze principles set out in the document and any subsequent decision.

ComReg's preliminary conclusions:

- 11.184 Eircom will be obliged to comply with an *ex ante* retail margin squeeze test in the NGA Footprint Area, in line with ComReg Decision D01/06 (as amended by this Decision).
- 11.185 In addition, Eircom will be obliged to undertake a cross-check to the relevant regulated prices (and associated model) used in the margin squeeze model to ensure that prices are not below (or substantially above) the relevant costs when compared to existing current generation prices and associated costs models where appropriate.
- 11.186 In addition to the requirements set out in ComReg Decision D01/06, Eircom will be required to pre-notify ComReg of the NGA retail standalone broadband prices for new and existing products 15 working days before the retail prices are expected to come into effect.

11.187 Eircom will only be required to provide a statement of compliance for NGA retail standalone broadband prices where they are likely to have a material impact on the market place. This represents a change to ComReg Decision D01/06 where a statement of compliance was required for all pre-notification in that context. We propose that "material" means the lower of either (i) 20% of Eircom's Next Generation retail customer base, in terms of subscriber numbers or (ii) 20,000 new retail subscribers for Eircom's next generation services.

11.188 Within one year from the effective date of this decision and annually thereafter, Eircom will be obliged to provide a statement of compliance to ComReg demonstrating its compliance with the retail margin squeeze test in the NGA Margin Squeeze Model, with all relevant supporting information.

Q. 25 Do you agree with ComReg's preliminary views, as set out above, regarding the retail margin squeeze test as well as the pre-notification and statement of compliance obligations in the context of NGA in the WBA market? Please provide reasons for your response.

Q. 26 Do you agree with ComReg's preliminary views that "materiality" should mean the lower of either (i) 20% of Eircom's Next Generation retail customer base, in terms of subscriber numbers or (ii) 20,000 new retail subscribers for Eircom's next generation services? Please provide reasons for your response.

11.5.5 A Margin Squeeze test between the wholesale products in the WBA Market and from the WBA Market to the WPNIA Market

Overview

11.189 As already set out in subsection 11.5.3, we consider that there should also be sufficient economic space between the relevant wholesale products on the ladder of investment. The main reasons why sufficient economic space are important are as follows:

- ComReg's objective is to promote competition based on efficient infrastructure investment and to encourage the functioning of the ladder of investment;
- Eircom should not price below relevant costs which might give rise to anti competitive effects on alternative infrastructure providers.

11.190 ComReg's objective is to ensure that an appropriate economic space is maintained in the short to medium term, based on the tests consulted on in this consultation document. The proposed margin squeeze tests should facilitate effective and sustainable competition, in line with ComReg's statutory objectives under Section 12 of the Communications Regulation Act and consistent with Regulation 13(3)¹³⁸ of the Access Regulations.

11.191 The economic space between the various wholesale products in the WBA market must be sufficient so that OAOs have the incentives to invest in their own infrastructure and should ensure that any investments made are not stranded, nor retail competition distorted to the detriment of competing infrastructure-based operators, as a result of a margin/price squeeze by Eircom.

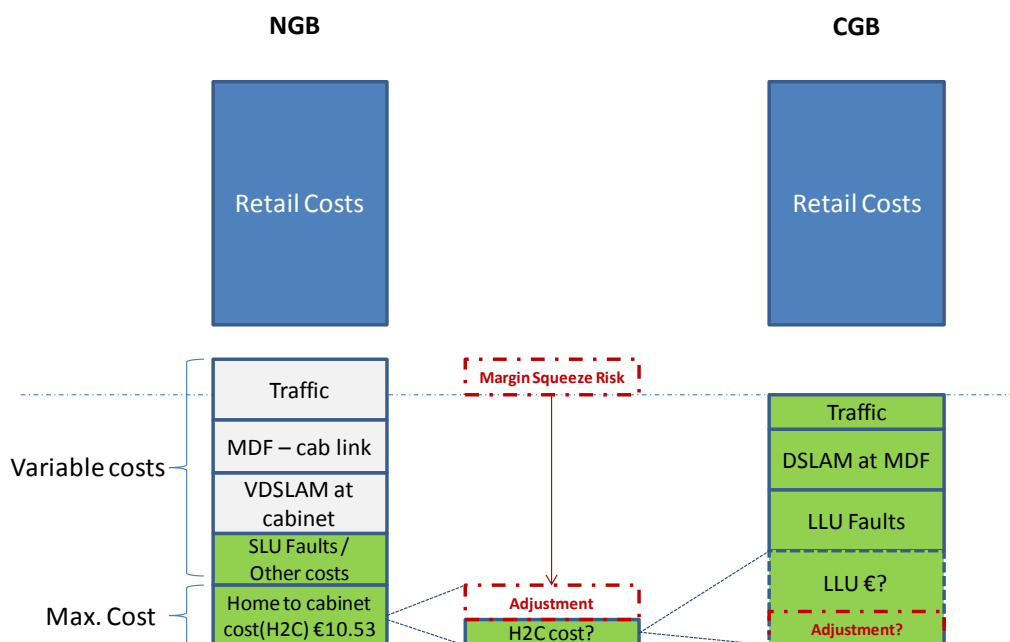
11.192 As recognised in the Oxera Report, insufficient headroom could prevent the development of infrastructure-based (or facilities based) competition, to the long-term detriment of competition in Ireland. The importance of ensuring consistent pricing between relevant wholesale inputs such that the prices set for a particular wholesale service do not squeeze another wholesale alternative is clear and widely acknowledged.

¹³⁸ Regulation 13(3), states that ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits.

11.193 We consider that our approach is consistent with respect to the non-eviction principle and the application of an appropriate economic space, in line with the approach applied in some other EU countries. In 2007¹³⁹ and 2009¹⁴⁰, ERG, in its Common Position papers, supports the concept of an appropriate economic space between wholesale products.

11.194 We consider that where a margin squeeze risk exists, Eircom would be required to amend any anomaly that this may create at a wholesale level so as to avoid a margin squeeze at the wholesale and possibly retail levels (this is illustrated in Figure 8 below). This is discussed in more detail below.

Figure 8: Illustration of the risk of margin squeeze between next generation broadband (“NGB”) and current generation broadband (“CGB”)



¹³⁹ European Regulator’s Group (“ERG”) in Common Position 07 (53), Report on Best Practices on Regulatory Regimes in the Wholesale Unbundled Access and Bitstream Access. Sections 3.1 and 3.2.

¹⁴⁰ European Regulator’s Group (“ERG”) in Common Position 09 (21), Report on price consistency in upstream broadband markets supporting the concept of an appropriate economic space between two wholesale products, namely LLU and Bitstream.

- 11.195 We consider that the proposed Margin Squeeze test between the relevant wholesale products in the WBA market and from the WBA market to the equivalent wholesale access product in the WPNIA market should ensure the promotion of competition at a retail level while at the same time it should ensure that there is sufficient economic space between the relevant wholesale products, which would discourage other operators from investing. This approach is consistent with Regulation 13(3) of the Access Regulations where it states that ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits.
- 11.196 It is essential that OAOs know what prices are available at each investment choice in the value chain, in order to make investment decisions over the long term. The proposals in this document strive to give this certainty by outlining what we believe is the appropriate economic space at each “rung” on the ladder of investment which should send the appropriate signals to the market to make business decisions.
- 11.197 The main wholesale NGA services on offer will be NGA Bitstream and VUA. For those OAOs who have invested deep into Eircom’s core network and exchange based collocation facilities, there are LLU based services.
- 11.198 The details of the precise margin squeeze tests between the relevant wholesale products in the WBA market and from the WBA market to the WPNIA market and the relevant principles that should apply to these tests are discussed in detail in the subsections below.

Notifications and compliance with the wholesale margin squeeze tests

- 11.199 Based on the obligations in place in ComReg Decision D01/06 for the retail margin squeeze test, we are proposing similar obligations in terms of pre-notifications and compliance for the wholesale margin squeeze tests. Eircom will be obliged to comply with a number of notification and compliance requirements in relation to the wholesale margin squeeze tests as part of this draft decision. These proposed requirements will be as follows:
- 1) Eircom shall pre-notify ComReg of all new wholesale prices and changes to existing wholesale prices for next generation products and services three months (with two months notice to the Industry) before the prices are expected to come into effect. This is consistent with existing transparency obligations. We consider that email communication should be a sufficient form of pre-notification in this regard.

- 2) For all wholesale price notifications, Eircom will be required to provide ComReg with a detailed written statement of compliance with the wholesale margin squeeze tests in the NGA Margin Squeeze Model, including all relevant supporting information to demonstrate its compliance.
- 3) Within one year from the effective date of this decision and annually thereafter, Eircom will be required to provide a statement of compliance to ComReg demonstrating its compliance with the wholesale squeeze test in the NGA Margin Squeeze Model. This will include detailed supporting information, disclosure of all material facts and stating precisely how Eircom is in compliance with the obligations and a demonstration of how the price of the wholesale offering of a new or existing product would be in compliance with the obligations. Within 15 working days after receiving the statement of compliance we will assess the information and decide whether we will issue Eircom with an opinion on the statement of compliance or a conditional written confirmation, whether we require further information for our assessment, whether we will inform Eircom that the price is not in compliance with the obligations or issue a direction or directions to refrain from implementing the price or change in price (or making the new wholesale equivalent offer available).
- 11.200 In any event, we will continue to monitor Eircom's compliance with the NGA Margin Squeeze Model on an ongoing basis throughout the price control period. In the case where Eircom is non-compliant with the margin squeeze test(s) in the NGA Margin Squeeze Model, changes to the relevant wholesale prices may be required.
- 11.201 We believe that the notification and compliance obligations are relevant for regulating the wholesale margin squeeze tests in the context of NGA. Given that the main wholesale NGA products to be deployed by Eircom are contained in the WBA market, as opposed to the WPNIA and given that we are proposing to allow Eircom price flexibility there is a necessity to have advance notification of new prices or changes to any of the existing prices to ensure that they are in compliance with the margin squeeze tests. There are two main NGA wholesale products subject to the wholesale margin squeeze tests, which are VUA and NGA Bitstream. Therefore, the obligations are on a discrete and limited number of services, rather than on a range of services. We believe that the proposed requirements should therefore not be overly burdensome.
- 11.202 For pre-notifying wholesale prices, we are proposing email communication, which should not be overly burdensome. We consider that these notification obligations should ensure that there is less likelihood of issues of non-compliance and potential withdrawal of services, at a later date.

ComReg's preliminary conclusions:

- 11.203 In the NGA Footprint Areas, Eircom will be obliged to comply with ex-ante wholesale margin squeeze tests in the WBA market and from the WBA market to the equivalent wholesale access product in WPNIA market, based on the NGA Margin Squeeze Model.
- 11.204 Eircom will be obliged to pre-notify ComReg for all wholesale prices related to new and changes to existing NGA wholesale products and services three months (with two months notification for Industry) before the prices are expected to come into effect.
- 11.205 For all wholesale price notifications, Eircom will be obliged to provide a statement of compliance to ComReg demonstrating its compliance with the wholesale margin squeeze tests in the NGA Margin Squeeze Model, with all relevant supporting information.
- 11.206 Within one year from the effective date of the decision and annually thereafter, Eircom will be required to provide a statement of compliance to ComReg demonstrating its compliance with the wholesale squeeze test in the NGA Margin Squeeze Model, with all relevant supporting information.

Q. 27 Do you agree with ComReg's preliminary views, as set out above, regarding the wholesale margin squeeze tests as well as the pre-notification and statement of compliance obligations in the context of NGA in the WBA market? Please provide reasons for your response.

11.6 Specific margin squeeze tests and principles

11.207 This subsection discusses the details of the margin squeeze tests and the relevant principles under the following headings:

- Specific margin squeeze tests in the WBA market and from the WBA market to the WPNIA market
- The principles to apply to the margin squeeze tests
- The importance of wholesale line rental (“WLR”) in the context of a margin squeeze.

11.6.1 Specific margin squeeze tests in the WBA Market and from the WBA Market to the WPNIA Market

11.208 The proposed margin squeeze tests in the WBA market and from the WBA market to the equivalent wholesale access product in the WPNIA market are as follows:

- Retail margin squeeze test between a retail standalone broadband and NGA Bitstream (and End-to-end Next Generation Bitstream where it is provided);
- Wholesale margin squeeze test between End-to-end Next Generation Bitstream and NGA Bitstream;
- Wholesale margin squeeze test between NGA Bitstream and VUA;
- Wholesale margin squeeze test between VUA and SLU.

11.209 The relevant principles that should apply to each of the relevant tests above are considered in the preceding subsection below.

11.210 In the context of the various tests, as outlined above, we consider that where a margin squeeze risk arises that Eircom should adjust the relevant wholesale inputs in order to secure the economic space for NGA services and between current generation services and next generation services.

Figure 9: Illustration of a movement in the retail price at (A), as a result of a commercial decision, and the corresponding adjustment necessary to the wholesale prices

Formula for the movement in retail price and the necessary adjustment required to derive the wholesale prices**

A = Existing Retail Price floor

A1 = Proposed new lower retail price floor

W = current wholesale cost

Y = required economic space between A and W

$$A1 - Y = W1$$

where W1 = new required wholesale cost to avoid margin squeeze risk

$$W - W1 = \Delta W \text{ (i.e. the change in the wholesale cost)}$$

where $\Delta W = X$

The proposed new lower retail price floor (A1) should mean a corresponding change to each of the wholesale input cost / prices according to the following formula (in order to avoid margin squeeze risk between the relevant wholesale products and services):

$$(B-X) = B1,$$

$$(C-X) = C1,$$

$$(D-X) = D1;$$

$$(E-X) = E1; \text{ and}$$

$$(F^*-X) = F1$$

B= Current End to end Next Generation Bitstream price

B1= New End to end Next Generation Bitstream price in order to avoid margin squeeze between B and C

C= Current NGA Bitstream price

C1= New NGA Bitstream price in order to avoid margin squeeze between C and D

Formula for the movement in retail price and the necessary adjustment required to derive the wholesale prices**

D= Current VUA price

D1= New VUA price in order to avoid margin squeeze between D and E

E= Current SLU price

E1= New SLU price in order to avoid margin squeeze between D and E

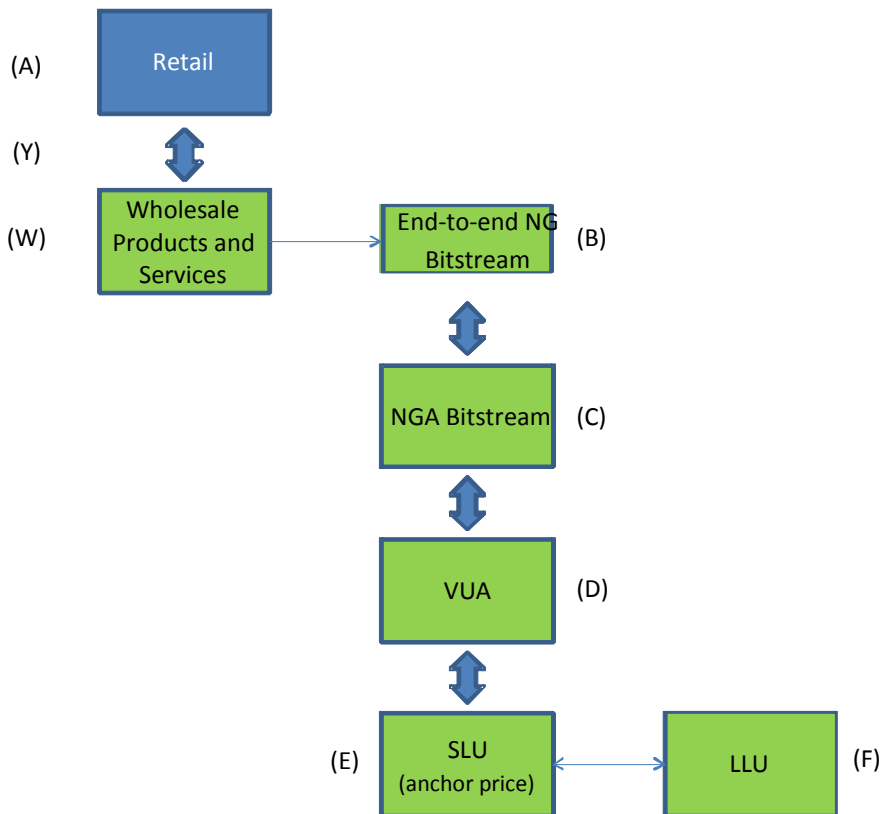
F*= Current LLU price

F1= New LLU price as a result of SLU price change where the value of X is currently unknown.

*Where the SLU price reduces, Eircom must ensure price consistency with LLU and amend the LLU price where appropriate using the Copper Access Model.

**Eircom can reduce prices across the value chain so long as it reduces the price for SLU and has reference to the NGA Margin Squeeze Model in the NGA Footprint Areas.

11.211 This is also illustrated graphically below.



- 11.212 This approach ensures that there is a consistent treatment of the charges both in the context of current generation and next generation products and services.
- 11.213 As already outlined earlier in this section, we consider that there should be sufficient economic space between the VUA product in the WBA market and the SLU access product in the WPNIA market.
- 11.214 As highlighted in the Oxera Report, studies commissioned by various NRAs show that, even in relatively densely populated countries such as Belgium and the Netherlands, the business case for SLU in the current market conditions is clearly not as economically feasible as for LLU. Furthermore, ComReg or Oxera has not found any evidence on large-scale take-up of SLU in any of the Member States. This is despite the fact that, the SLU product is currently available in a number of countries, which may reflect regulators' reluctance to exclude the option of an operational ladder of investment at this stage in the market development.
- 11.215 While the SLU price may in practice be notional in the absence of any operator actually purchasing the SLU product, there is no reason to exclude it from the cost stack in NGA areas, at this stage. The main reason for including the cost of SLU in the cost stack for NGA (VUA) is based on the fact that the cost represents the cost of access from the end-user to the cabinet, driven mainly by the cost of trenching and duct provision and is the price that Eircom have maintained to date is representative of the wholesale cost.
- 11.216 Furthermore, SLU and its associated cost of provision is a direct input for NGA-based access. This consultation sets out the relevant input costs to the NGA Margin Squeeze Model for the NGA products and services in the WBA market.
- 11.217 If the price of SLU is reduced in order to prevent a margin squeeze Eircom will be obliged to ensure price consistency with LLU and amend the LLU price where appropriate using the Copper Access Model, in the NGA Footprint Areas. As recognised by Oxera in Section 3 of the Oxera Report, SLU is a common input into both LLU and VUA products, so a consistency requirement between SLU and LLU on the one hand and SLU and VUA on the other indirectly implies a consistency requirement between LLU and VUA, where services are delivered over the same basic infrastructure which carry the same or similar cost characteristics.

11.218 Oxera stated in its report that efficient migration from copper to NGB can be insured with the right price signals for OAOs and final consumers. This requires LLU and VUA prices to be consistent, where appropriate, with the quality and other aspects of these products. We have considered this view and - subject to consultation - we agree with it.

ComReg's preliminary conclusions:

11.219 The following are the relevant margin squeeze tests in the WBA market and from the WBA market to the WPNIA market in the context of NGA.

- Retail Margin Squeeze test between retail standalone broadband and NGA Bitstream (and End-to-end Next Generation Bitstream where it is provided);
- Wholesale margin squeeze test between End-to-end Next Generation Bitstream and NGA Bitstream;
- Wholesale margin squeeze test between NGA Bitstream and VUA;
- Wholesale margin squeeze test between VUA and SLU.

Q. 28 Do you agree with the proposed margin squeeze tests in the WBA market and from the WBA market to the WPNIA market in the context of NGA? Please provide reasons for your response.

11.6.2 Principles to apply to the margin squeeze tests

11.220 This subsection discusses the proposed principles for both the retail to wholesale margin squeeze test and also for the wholesale margin squeeze tests. It is important to note that the principles discussed below relate to margin squeeze tests that include stand alone broadband products and where bundled with other unregulated services, which do not include legacy services.

11.221 For each of the principles discussed, we refer to the relevant margin squeeze tests, be it the retail to wholesale test in the WBA market or the wholesale to wholesale Margin Squeeze test as part of the assessment below. However, in general we consider that similar principles should be applied for both the retail to wholesale margin squeeze test in the WBA market and for the wholesale margin squeeze tests for the reasons set out below.

11.222 In the First NGA Consultation, we consulted on a number of key features in the design of a margin squeeze test. Regardless of whether it is an assessment of a margin from retail to wholesale or wholesale to wholesale, the following parameters are necessary to consider before deciding how such a test should be applied when setting price levels or addressing a complaint. The analytical stages of the margin squeeze test and our preliminary views are discussed in turn under the following headings:

- Operator cost base;
- Operator volume base;
- Appropriate cost standard;
- Appropriate model type;
- Portfolio or product by product; and
- Appropriate cost stack.

11.223 The NGA Margin Squeeze Model sets out the relevant cost inputs for the NGA product and services in the WBA market.

11.224 Eircom will have the flexibility to set the retail prices. Depending on the retail price set, Eircom would determine the wholesale prices in line with the NGA Margin Squeeze Model. Eircom can reduce the wholesale prices along the value chain so long as the appropriate amendments are made to the relevant underlying wholesale price inputs i.e. the SLU price.

Operator cost base:

11.225 In the First NGA Consultation, we generally consulted on the three options for determining an operator cost base where a particular margin squeeze test is applied, these included:

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

11.226 Each option is described in some detail in the First NGA Consultation. In summary, the EEO test assumes the efficient costs based on the volumes of the incumbent and is more often associated with ex-post competition case law. SEO means an operator who shares the same basic cost function as Eircom Limited but does not yet enjoy the same economies of scale and scope as the incumbent (Eircom). In essence, this is similar to the REO test as the cost function is adjusted to reflect the fact that an OAO does not yet enjoy the same economies of scale and scope as Eircom. The main difficulty with the REO test is the availability of reliable OAO data.

11.227 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. Consequently, for the same total cost, an EEO would have a lower per unit cost than a SEO as an EEO has a larger scale and product scope.

11.228 An EEO test would result in lower retail costs; consequently Eircom could pass these lower retail broadband costs as a lower price to its retail customers without cutting wholesale prices.

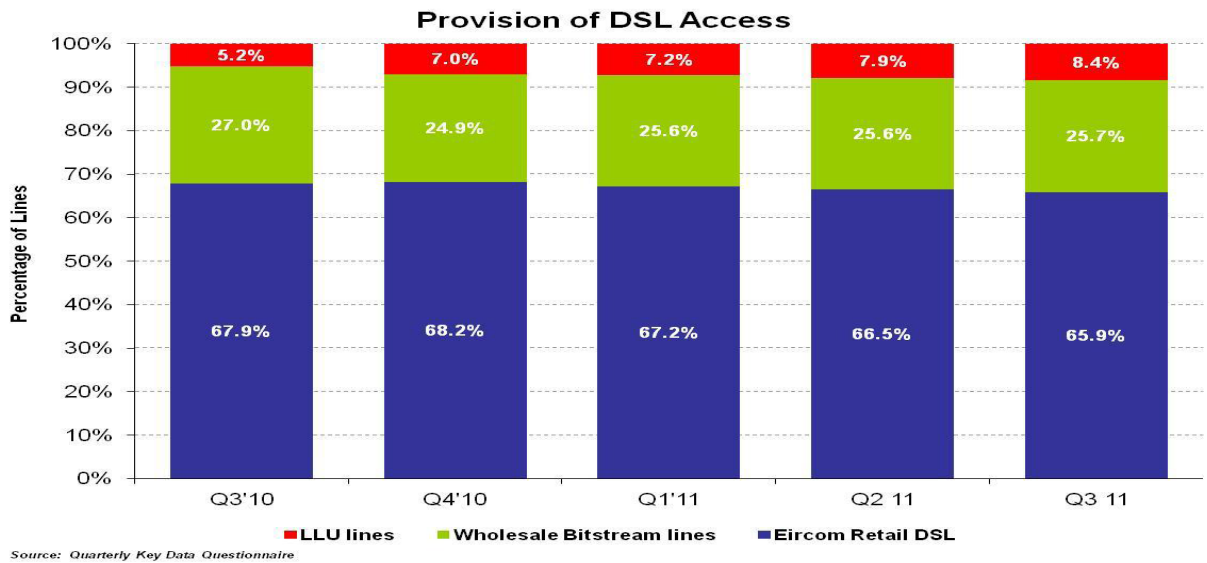
11.229 Eircom believe that the EEO approach should be used when considering pricing remedies for Eircom's NGA offerings. Eircom considers that for the REO/SEO test, there must be competitors who are not currently at scale but who will likely achieve scale if they are given competitive headroom. If competitors are already at scale, then they do not need to be supported via the REO/SEO standard. They believe that if ComReg wished to apply a REO/SEO standard to NGA, it needed to show that competitors are not currently at scale but will achieve scale.

- 11.230 Eircom supported the EEO approach for the reason that companies like Vodafone, O2, Sky and BT who are larger than Eircom, when their international operations are taken into account, can take advantage of economies of scale and scope at the retail level between their operations in Ireland and other countries in which they operate.
- 11.231 We consider that in the Irish context the limited LLU take-up to date is indicative of sub-scale competitors; notwithstanding the financial resources and brand benefits of the multinational OAOs have relatively low volumes after being active in the fixed market for several years. It is, however, noted that the recent increased take-up of unbundling suggests that these firms might reach efficient scale in the future. (This was also noted by Oxera in Section 3 of the Oxera Report). At this stage no communications operator can match Eircom's scale in an Irish context and certainly not in a fixed line context. However, we consider that there may be certain retail cost categories e.g. advertising costs in the context of NGA that may differ in this regard and we are consulting on the proposal to use the EEO cost base for advertising costs. This is considered in subsection 11.10.1 below.
- 11.232 If there is significant take up of VUA or LLU in more exchanges with a greater number of lines than today, then a move to an entire EEO approach may be considered. However, given the take-up of LLU to date and the number of exchanges unbundled, we consider that the SEO is largely the more appropriate cost base for now in the context of the retail margin squeeze test and the wholesale margin squeeze tests.
- 11.233 Vodafone and Magnet agreed with the SEO test. Vodafone believed that the SEO would accurately take account of the significant and enduring scale differences between the vertically integrated SMP operator and the OAOs including Vodafone.
- 11.234 The European Commission in Recital 26 of the NGA Recommendation recognised the importance of a margin squeeze test and stated that:

"Margin squeeze can be demonstrated by showing that the SMP operator's own downstream operations 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 competitor' test). Alternatively, a margin squeeze can also be demonstrated by showing that the margin between the price charged to competitors on the upstream market for access and the price which the downstream arm of the SMP operator charges in the downstream market is insufficient to allow a reasonably efficient service provider in the downstream market to obtain a normal profit (reasonably efficient competitor test). In the specific context of ex ante price controls aiming to maintain effective competition between operators not benefiting from the same economies of scale and scope and having different unit network costs, a 'reasonably efficient competitor test' will normally be more appropriate. Moreover the assessment of any margin squeeze should be performed over an appropriate timeframe. To foster predictability, NRAs should properly specify in advance the methodology they will follow to identify the imputation test, the parameters to be used and the remedial mechanisms in case of established margin squeeze".

- 11.235 The NGA Recommendation promotes a REO margin squeeze test. While we are open to this approach, generally the necessary operator information is not readily available to implement such a test. Therefore, we have, in the past, tended to use the SEO test as Eircom's costs are reasonably well known and are supported by a set of audited separated accounts.
- 11.236 The SEO and REO test are very similar in nature as they both take account of the fact that operators currently have a different basic cost function to Eircom and they do not yet enjoy the same economies of scale and scope as Eircom.
- 11.237 Therefore, given the issue regarding the availability of robust OAO data, we believe that SEO should be used for both types of margin squeeze tests.

11.238 Eircom’s market share of DSL broadband lines has not changed significantly over the years and has remained just below 70%¹⁴¹, as illustrated below. Given that the WBA market is not fully developed and other operators have not yet gained sufficient scale or scope the SEO test is considered the appropriate basis at this stage. , for both the retail to wholesale margin squeeze test and for the wholesale margin squeeze test between End-to-end Next Generation Bitstream and NGA Bitstream and between NGA Bitstream and VUA. The SEO test should promote competition and allow entrants to gain scale. This allows Eircom a significant advantage over other operators when migrating customers, when updating systems and processes and in terms of its scale for spreading costs across the various business services.



11.239 We have derived prices for competitors that would be as efficient as Eircom at equivalent scale, but do not have the same scale as Eircom. Given the number of subscribers Eircom has built up, there is not room in the market for more than one firm to have the same scale as Eircom currently has in the fixed network. Therefore, any remedy which sets out to ensure fair and effective competition has to allow for smaller scale. However, our approach is also designed to avoid the costs of market entry by firms that are either inefficient or unable to achieve sustainable scale.

¹⁴¹ ComReg Document No 11/98: Quarterly Key Data Report - Data as of Q3 2011; dated 9 December 2011.

- 11.240 Furthermore, the SEO test is consistent with our views in the WBA pricing consultation, in ComReg Document No 10/108, where it is proposed that a SEO cost base should be used to set the price floors for the current generation products in the WBA market. ComReg considered in that context that the SEO test 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 WBA market.
- 11.241 A SEO margin squeeze model has already been developed in the context of wholesale leased lines (“WLLs”), between the relevant wholesale products in the market for wholesale terminating segments of leased lines (Market 6). Pricing consistency between the WBA market and the market for wholesale terminating segments of leased lines is important, given that leased lines are typically constructed on the same underlying materials as Bitstream products e.g. transmission costs and trenching costs. It is vital that the pricing signals allow the market to freely choose the most effective and cost-efficient method for delivering services to businesses. The leased lines margin squeeze model includes the costs relevant for Ethernet and Backhaul, which will also be relevant in the context of the proposed margin squeeze test between NGA Bitstream and VUA, in the WBA market.
- 11.242 For the retail margin squeeze test we consider that a SEO approach is largely the more appropriate approach but we are consulting on whether there are certain retail cost categories e.g. advertising costs which may be more akin to an EEO approach in the context of NGA. This has been discussed in subsection 11.10.1 below.
- 11.243 We consider that for now an EEO test does not seem appropriate for the wholesale margin squeeze tests from End-to-end NG Bitstream to NGA Bitstream and from NGA Bitstream to VUA as there are no entrants in the Irish market that exhibit 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 do not believe it would be appropriate at this time to introduce it. We consider that we should monitor market share changes over the next few years and when there is evidence to show that operators have gained scale, a move to an EEO approach should be considered.
- 11.244 We consider that for the wholesale margin squeeze test from the WBA market (VUA product) to the WPNIA market (SLU product) that it may not be reasonable to derive the economic space on the basis of an SEO test. As recognised by Oxera in Section 3 of the Oxera Report, we consider that given that there may be no realistic prospect for any significant provision of an alternative wholesale input further upstream from VUA and a test based on SEO costs may not be appropriate.

11.245 In this context it is important to recognise the relevance of SLU to the cost stack. As discussed previously, the main reason for including the cost of SLU in the cost stack for NGA (VUA) is based on the fact that the cost represents the cost of access from the house to the cabinet, driven mainly by the cost of trenching and duct provision and is the price that Eircom have maintained to date is representative of the wholesale cost. If SLU no longer existed we may have to reconsider whether a pure cost based approach is more relevant in the context of NGA products (VUA) in the WBA market. However, we will keep this under review.

11.246 Insofar as there is no business case, to date, for OAOs to build out their own fibre networks to cabinets (and purchase SLU from Eircom) it would not seem reasonable to provide 'entry assistance' through an SEO-based economic space between VUA and SLU. However, we consider that the EEO costs of Eircom are relevant given that it is currently the only operator providing the SLU service and in general the same costs would apply if another SLU operator were to provide the services. Therefore, generally there are no economies of scale or scope differences to be considered in this regard. There are some exceptions but these are discussed under the relevant test below.

11.247 This has been further discussed in more detail later in this section as part of the NGA Margin squeeze Model.

Operator volume base:

11.248 In the First NGA Consultation we noted that it can be difficult to assess whether a new entrant should be more (or less) efficient than Eircom in its operation within the market under review. Using Eircom's volumes to determine the minimum margin between wholesale and retail prices might allow for the exact recovery of Eircom's own costs, but it could also jeopardise and create a disincentive on alternative operators which would prevent them from entering the relevant downstream markets.

11.249 We set out three possible options to adjust the test to account for differences in economies of scale between Eircom and the access seekers. These options were:

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

11.250 Vodafone, in its response, stated that the minimum market share for the margin squeeze test on a SEO basis should be set at 15% as this equates to the retail market share already held by leading competitors to the SMP operator in the provision of existing fixed retail broadband services and could likely be the medium-term target market share for other existing OAOs or potential new entrants.

11.251 We consider that the proposed margin squeeze test between the retail and wholesale products and the wholesale margin squeeze test between End-to-end NG Bitstream and NGA Bitstream and NGA Bitstream and VUA should be based on the 25% market share. Firstly, this is consistent with the market share percentage previously applied in the WBA retail minus decision (ComReg Decision D01/06). Secondly, Eircom retail itself faces considerable demand uncertainty for NGA based services and it may be more realistic to assume a narrower gap in market shares for NGA based services than has materialised in the past. ComReg wishes to avoid inefficient entry and believes that on balance this approach is reasonable. However, we will keep this under review. In such an event sufficient notice will be given to industry

11.252 In conclusion, a hypothetical operator with a market share of 25% is the relevant volume base to apply in context of the retail to wholesale margin squeeze test and the wholesale margin squeeze tests in the WBA market.

Appropriate cost standard:

11.253 As set out in the First NGA Consultation, calculating the minimum allowable margin requires the NRA to determine additional costs associated with converting wholesale access into the downstream product (e.g. retail broadband). The cost standard options included the following:

- Average Variable Cost (“AVC”)
- Average Avoidable Cost (“AAC”)
- LRAIC
- ‘LRAIC plus’
- Average Total Cost (“ATC”).

- 11.254 Each of the options was discussed in some detail in the First NGA Consultation. In summary, the AVC standard approximates to 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.
- 11.255 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.
- 11.256 Eircom stated, in its response to the First NGA Consultation, that the margin squeeze test should be based on the incremental or avoidable costs. It stated that the choice between the incremental or avoidable costs came down to the question of whether the competitive concern is primarily with the exclusion of existing or potential competitors. Eircom believes that an avoidable cost standard omits sunk costs that are not avoided on exit and if the concern is about excluding potential entrants, who would incur those sunk costs, then an avoidable cost standard is not correct and instead an incremental cost standard should be chosen. However, it further added that if the concern is with excluding existing competitors, then an avoidable cost standard is reasonable. Vodafone believed that ATC was the appropriate cost standard, given that it takes account of the central role of fixed costs in providing communications services.

- 11.257 As already proposed in the consultation about bundles (ComReg Document No 11/72), 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, consumers. 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 market. Given that this is not the issue, we consider that the ATC approach is the appropriate cost standard for the retail margin squeeze test. The current DCF model from ComReg Decision D01/06, which is used in the context of the proposed retail margin squeeze test in this draft decision are based on the ATC costs of Eircom. The difference between ATC and LRAIC plus in the context of the retail costs is generally not material. By using the ATC approach we are consistent with the approach taken to date in ComReg Decision D01/06.
- 11.258 We propose that where the retail NGA standalone broadband product being sold is only to a relatively small customer base, e.g. less than 5,000 customers, Eircom may sell at a lower cost standard than that allowed by ATC in the NGA Margin Squeeze Model. For example, a LRAIC plus or LRAIC may be appropriate whereby the recovery of some or all of the common costs and/or fixed indirect costs are deducted. However, in the long-run Eircom should recover the overall ATC costs.
- 11.259 In exceptional circumstances ComReg may allow the launch or promotion of products based on the recovery of LRIC costs, which excludes a contribution to the network costs. This proposal would also be subject to the pricing pre-notification obligations.
- 11.260 The margin squeeze test for retail bundles will require the recovery of the ATC over any given period with the sales of fixed calls based on LRAIC plus and unregulated services at the LRIC cost standard but only where there is no cross subsidisation or where the overall network of the services covers its LRAIC cost.
- 11.261 'LRAIC plus' is considered to be more appropriate for the wholesale margin squeeze tests, that is the test from End-to-end NG Bitstream to NGA Bitstream, from NGA Bitstream to VUA and from VUA to SLU, given that it promotes entry, takes account of all incremental costs of starting to provide a service and includes a mark-up for common costs. The main reason is the fact that 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. We consider that the 'LRAIC plus' costs is the calculus faced by any operator when deciding to enter or expand in the market. As a result, new entrants participate in the cost savings of the incumbent due to economies of scale and scope.

- 11.262 The 'LRAIC plus' approach is also consistent with the cost standard proposed in ComReg Document No 10/108, on setting price floors for the wholesale legacy Bitstream products. It is also the relevant cost standard used for setting the cost floor for wholesale leased lines and related services. (ComReg Document No 12/03).
- 11.263 The recent bundles draft decision, in ComReg Document No 11/72 and as referred to earlier, sets out the ATC approach for the portfolio of bundles that may be on offer from time to time by Eircom. Therefore, the 'LRIAC plus' approach may change depending on the number of customers that migrate to NGA services.
- 11.264 If the majority of Eircom's retail broadband base moved to NGA services then the recovery of the ATC cost standard may need to be reviewed to ensure that the 'LRAIC plus' does not lead to anti-competitive effects and losses by Eircom. The recovery of all of the company common costs by Eircom is particularly important in this regard.

Portfolio or product-by-product:

- 11.265 An assessment of the margin squeeze can be conducted either on a single product offered by the SMP operator or on a number of products as a whole i.e. a portfolio of products. This is relevant to retail and wholesale services offered by Eircom.
- 11.266 As recognised in the Oxera Report, there are sound economic reasons to allow some efficient price discrimination and hence cost recovery from a broader range of services. This is further reinforced in the NGA environment where greater bandwidth enables a wider range of retail offers.
- 11.267 The portfolio approach has been proposed in the bundles consultation, in ComReg Document No 11/72. We consider that it is important to ensure regulatory consistency across various regulated products and services.
- 11.268 Therefore, we consider that the retail margin squeeze test should be based on a portfolio approach where Eircom should recover the ATC costs for standalone broadband services in aggregate on a SEO cost basis.
- 11.269 The portfolio in the context of the retail to wholesale margin squeeze test would be based on a weighted average portfolio of expected customers for each of the relevant retail services against the wholesale NGA Bitstream (and End-to-end NG Bitstream service where it is provided). We would continue to monitor the expected weighted average portfolio against the actual results.
- 11.270 We have noted some exceptions with regard to the cost standard in the section above.

11.271 As already discussed earlier in this section, Eircom will only be required to provide a statement of compliance for amendments to new or existing retail products where the standalone retail broadband product being sold has a significant impact on the market place or where it gives rise to significant anti-competitive effects. In this regard, we propose that Eircom should be obliged to provide a statement of compliance where the new or existing product is likely to represent the lower of (i) 20% of the Eircom next generation retail customer base in terms of subscriber numbers or (ii) 20,000 additional retail subscribers for Eircom's next generation services.

11.272 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.

11.273 For the wholesale margin squeeze test in the WBA market, Eircom may offer a number of wholesale services, either passive or active. These may be sold to operators in a number of ways. A product-by-product analysis is more appropriate in this context and this is consistent with other wholesale margin squeeze tests i.e. leased lines and WBA.

Appropriate model type:

11.274 We consider that there are two model options in the context of the margin squeeze tests:

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

11.275 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.

11.276 We consider that the retail margin squeeze test should be based on a DCF model. A DCF model has been used for the past number of years under the WBA retail minus decision (ComReg Decision D01/06).

11.277 We consider that a DCF model is more appropriate in the context of NGA, rather than a fully allocated cost ("FAC") model, given the uncertainty over volumes in the context of the fibre network rollout and the fact that some offers, in order to be of any interest to consumers, may have to be priced at a loss at small volumes in the early days of their availability.

11.278 Currently, a FAC model is used for the current generation broadband services, as part of the net revenue test ("NRT") in bundles. The FAC approach is relevant to the current generation network given that volumes are relatively static and known. If the FAC approach were used in the context of NGA this may result in higher retail prices.

11.279 We consider that a DCF model should be used in the context of the NGA products for the margin squeeze test from retail to wholesale, given the uncertainty over volumes and the fact that it has been used to date under ComReg Decision D01/06.

Appropriate retail costs:

11.280 The retail cost stack is relevant in the context of the retail to wholesale margin squeeze test for NGA in the WBA market.

11.281 In ComReg Decision No D01/06 we considered a number of cost categories as being relevant in the context of the DCF model to determine the margin for the retail minus price control for WBA.

11.282 We consider that the cost categories from ComReg Decision D01/06 may be used as a starting point in the context of the DCF model for NGA services – but that amendments should be made to reflect the different costs between current generation and next generation. The cost categories from D01/06 are as follows:

- Marketing
- Sales
- Product management and development
- Accommodation
- Help desk
- Billing
- Modems
- Order handling
- Backhaul charges
- Servers and collocation
- Corporate overhead
- Internet connectivity

- Wholesale connection.

11.283 Eircom believes that the cost stack from D01/06 is broadly similar in the context of NGA.

11.284 We consider that such costs as sales, marketing, modems and internet connectivity costs may need to be amended for NGA services.

11.285 The installation costs of Customer Premises Equipment (“CPE) are important costs to consider in light of NGA deployment. Eircom clarified that new CPE will be required for most customers, and operators will need to make their own selections in this area. Given that the cost of the CPE is expected to be material, we are of the preliminary view that this cost should be capitalised and written off over a defined period of time.

11.286 These cost categories are considered further later in this section as part of the NGA Margin Squeeze Model.

ComReg's preliminary conclusions:

11.287 The table below summarises the margin squeeze principles that ComReg proposes that Eircom will be obliged to comply with in the context of the margin squeeze tests for NGA.

Margin squeeze test - analytical stages	Retail to wholesale NGA Bitstream (and End to end NG Bitstream)	End-to-end NG Bitstream to NGA Bitstream	NGA Bitstream to VUA	VUA to SLU
Operator cost base	SEO ¹⁴²	SEO	SEO	EEO
Operator volume base	25%	25%	25%	n/a
Operator cost standard	ATC	'LRAIC plus'	'LRAIC plus'	'LRAIC plus'
Portfolio product or by product	Portfolio	n/a	n/a	n/a

¹⁴² We are consulting on whether an EEO cost base is appropriate for advertising costs.

Margin squeeze test - analytical stages	Retail to wholesale NGA Bitstream (and End to end NG Bitstream)	End-to-end NG Bitstream to NGA Bitstream	NGA Bitstream to VUA	VUA to SLU
Model type	DCF	n/a	n/a	n/a
Retail costs	In line with retail cost stack in D01/06 but further specified in this consultation	n/a	n/a	n/a

Q. 29 Do you agree with ComReg’s preliminary views, as set out above, in relation to the principles of the margin squeeze test in the context of NGA, for the retail to wholesale margin squeeze test and the wholesale to wholesale margin squeeze tests? Please provide reasons for your response.

Q. 30 Do you agree that Eircom should be required to follow the product-by-product approach, as opposed to the portfolio approach, where the new or existing product is likely to represent at least 20% of the Eircom retail NGA customer base? Please provide reasons for your response.

11.6.3 Importance of wholesale line rental ("WLR") in the context of the margin squeeze tests for NGA

Overview

- 11.288 WLR is part of the retail fixed narrowband access market, or Market 1 and is currently priced on a retail-minus basis. The retail minus percentage is calculated with reference to Eircom's HCA retail costs on an EEO basis.
- 11.289 For the foreseeable future it seems that WLR and PSTN telephony services will continue to be the significant wholesale and retail services over the Eircom network.
- 11.290 The relevance of WLR may decrease as voice over broadband ("VoB") becomes more prevalent in NGA areas. However, it is important that consumers that do not have a broadband connection can continue to receive competitive offers where those copper lines are in similar or close proximity to the geographic areas of those customers with fibre based broadband. Therefore, WLR should be priced consistently with other fixed access products to avoid the anomaly of much higher access prices for consumers in the same geographic areas as those availing of higher speeds over upgraded fibre networks.
- 11.291 Once NGA networks are installed, it is likely that a significant number of customers will still be served via current generation copper based services and Bitstream equipment from the exchange. To ensure that all operators serving all contestable customers can compete, these current generation services may have to be priced consistently with the NGA services. Otherwise in the short term some of these OAOs, who have played a key role in providing retail competition, could be foreclosed from the retail broadband market.

Transition to Voice over Internet Protocol ("VoIP")

- 11.292 A likely significant development over the next few years will be the transition of the fixed traditional voice service, currently known as plain old telephony service ("POTS"), to VoIP based voice service. While this will be a significant technological development, it is unlikely to be disruptive and consumers should not see any change in their retail service. Indeed this is currently the case for much of the telephony services offered to businesses in Ireland today, where some can avail of IP based voice already.

- 11.293 However, the introduction of a mass market residential IP based voice service will present significant challenges to the main fixed voice wholesaler, Eircom, and other OAOs. While POTS has been in existence for many years, even decades, the interconnection principles and configurations of various networks has evolved over many years to ensure consumers benefit from a seamless service with all the bells and whistles required of a voice service. The consumers will expect no less from an IP based service. In addition, OAOs will require the same level of interconnection and wholesale service from the SMP provider of voice where POTS is replaced and wholesale IP voice is required by OAOs from Eircom to compete in the retail voice market.
- 11.294 Currently, the provision of POTS is provided using WLR. As pointed out above, this service, which is a remedy derived from the Retail Narrowband Market is currently a service offered nationally. It is unlikely however that IP based voice be a national service given the economics of building an IP platform nationally and to every POTS based exchange. Therefore, it is likely that Ireland may have a mix of POTS and IP based services running together for many years.
- 11.295 Some other operators in Ireland already provide an IP based voice solution, notably UPC which offers residential voice over its fibre network. To date this has proved to be reasonably popular with consumers who have opted for UPC as their voice provider even without broadband. This trend is likely to continue where these services are available in mainly urban areas.
- 11.296 However, this presents a significant challenge on the appropriate representation of IP voice both currently and going forward in a regulatory framework which to date has only had POTS as the main voice offering, both at a wholesale and a retail level. It is proposed by Eircom in their latest product set that where NGA broadband is provided that the consumer will also have the option to maintain their POTS based service over the copper line as the copper line will remain active from the exchange. It is not Eircom's intention to switch off the copper line for some years to come. However, as this POTS based service will in certain circumstance be provided over a parallel running fibre network, which is the subject of this paper, the question arises as to whether the traditional wholesale line rental service referred to earlier is the relevant wholesale input to any Margin Squeeze test in the context of NGA broadband provided with POTS.

- 11.297 This issue is of critical importance during the transition from POTs to IP voice. Significant distortions could occur where the imposition of a margin squeeze test on Eircom does not take into account the voice element while the full scale IP network is being built. This could have very negative implications on investment decisions and the success of migrations to NGA services. However, significant distortions could also occur in the short to medium term where parallel current generation services are competing in the same areas as the NGA services. The investment decisions of others may also be negatively impacted by any uncertainty or changes as to how POTs based services are dealt with in as part of a margin squeeze test.
- 11.298 Eircom has in the lead up to this consultation made proposals to ComReg on how the offer of POTS with NGA broadband could be priced at a wholesale level from launch. ComReg has considered the complexity of the issues raised and considers the various options. We now request feedback from industry on how best the issues raised can be managed going forward within the regulatory framework set out. Presented below are a number of options for consideration on how these issues could be managed during the transition to ensure all stakeholders have certainty on how this might be regulated to ensure incentives are maintained and competition is not distorted to the detriment of consumers in the long term.

Options to account for WLR/VoIP in the context of NGA

- 11.299 We consider that the following options should be considered and we welcome the view of industry in this regard.

Option 1:

1. This option would treat the provision of POTS in tandem with NGA broadband services as the equivalent to the VoIP based service on the principle that the Modern Equivalent Asset ("MEA") is VoIP. This would decouple the POTs service from the WLR service and therefore the proposed margin squeeze test explained earlier in this paper for NGA Bitstream would only include an add-on for the likely wholesale cost of VoIP voice.

Option 2:

2. This option would mean that either a) nationally or b) only in areas where NGA broadband is rolled out, all lines, current generation and next generation, could avail of a wholesale bundle discount where WLR is sold with Bitstream (subject to the overriding requirement to avoid a margin squeeze against LLU provision). This option would also require compliance with the margin squeeze tests set out in this consultation in order to maintain an economic space against SLU. Where WLR is sold with NGA bitstream is would be necessary to make the relevant adjustment for the Market 4 Access network cost to ensure there is no double counting of costs. As presented in section 11.10.5, the stand alone NGA bitstream service will include SLU access costs as an input, the cost of which is relevant for the provision of WLR.

Option 3:

3. This option would be the same as option 2 except that the price of the current generation (legacy) lines may eventually rise to encourage migration of customers to the next generation broadband and IP network.

Option 4:

4. This option would mean that all copper lines in the NGA areas are priced on a cost orientation basis (currently WLR is based on a retail minus price control) regardless of whether the lines are providing voice only or broadband (current generation or next generation) based on the Copper Access model used for the LLU/SLU prices (as amended from time to time).

Option 5:

5. Retain the status quo

11.300 We consider that Option 1 is unlikely to be appropriate, given that the POTS service would be decoupled from the WLR service which is part of Market 1. In addition, it is not clear at this point whether the MEA of POTS would equate to a VoIP service.

- 11.301 Option 2 may be more appropriate given that it ensures consistency between current generation and next generation prices, it allows flexibility to Eircom where retail constraints exist and it ensures that all operators are treated in an equal manner, which is in line with the obligation of non-discrimination. However, end users who do not use broadband would lose out in relative terms. Option 2 (a) (a discount available everywhere Bitstream is available) would have the merit of allowing retail customers outside the NGA area to gain the benefits of competitive pressures in that area and would allow OAOs to provide better value services to these users. On the other hand this option may create or increase the differential between process and costs in these areas as these are likely to be more expensive to serve. Potentially this could have implications for the funding of any future USO obligation. Option 2 (b) on the other hand loses these benefits as described but reduces the risk of any divergence between revenues and cost.
- 11.302 Option 3 is a variant of Option 2 but this option is not relevant for now at least until the fibre network is extensive and ComReg is satisfied that wholesale product and migration processes have been proven to work well.
- 11.303 Option 4 would require a change to the existing retail minus price control. This would mean a separate consultation process.
- 11.304 In ComReg Document No 11/72, the margin squeeze principles that apply in the context of WLR have already been consulted on by ComReg as part of the retail bundles consultation. If a change is required to the WLR price as a result of any movement in the access prices in the context of NGA, then the principles determined as part of any potential decision regarding the bundles consultation should apply. As copper based services and fibre based services will co-exist for the next few years at least, any adoption of the options above could give rise to significant political, economic, social and technological issues. These are addressed as follows.
- 11.305 For an end-user perspective, if the IP based service, yet to be built, was to be considered the MEA for POTs in the short term, this could give rise to significant differences between the prices some consumers pay for line rental and voice in the same area. This could appear anomalous to consumers and could be seen as discriminatory.
- 11.306 From an economic perspective, some consumers, i.e. those that chose not to use high speed broadband services could end up paying significantly more than those that do. This could have adverse consequences of devaluing the copper based services which are still a fundamental part of urban and rural life for the provision of telephony services.

- 11.307 From a social perspective, if consumers living within short distances from each other notice significant differences in price for the same or similar services, this could exacerbate a Digital divide within urban and suburban areas. Broadband from the cabinet or from the exchange over fibre will not be available to all consumers from the nominated NGA exchanges, therefore those customers who are too far from the cabinet to avail of NGA could end up paying significantly more for a lesser service.
- 11.308 From a technological perspective, the use of the POTs service to deliver voice is a pragmatic solution while IP voice is rolled out. However, it seems to us at this time that the use of the MEA principle may not be a real proposition. To allow the use of the POTs based service as the MEA now could dis-incentivise innovation and movement to what should be a more efficient and cheaper service. It is unlikely to be efficient in the long run to maintain a copper and fibre network for voice and any continuation of the POTs service by Eircom should be avoided where it is as a result of a regulatory decision now. From a supply side, we have yet to see whether alternative operators are in a position to supply their own Voice over Broadband product as discussed in Section 10. From a market analysis point of view, it has yet to be examined, whether the supply and demand of Voice over broadband can be considered to be a fully functioning technically and economical substitute for POTS based delivery of voice.

ComReg's preliminary conclusions:

- 11.309 Where WBA (next and current generation) is bundled with WLR, all lines must be priced in accordance with the relevant margin squeeze principles set out in this consultation for next generation services as well as any decision from Consultation Document No 11/72 on Bundles and ComReg Decision No. D07/61 (which includes the price control for WLR).
- 11.310 We note that any reduction to the WLR price can be made in accordance with ComReg Decision No. D07/61 (which sets a maximum price). We also consider whether it would be appropriate to allow a discount to OAOs on a non-discriminatory basis where WLR is bundled with a broadband service (including Copper based services such as Bitstream and LLU Line Share). Under this scenario and in line with the notification requirements contained in ComReg Decision No D07/61 and this draft Decision Instrument, Eircom will not implement any discount in respect of a bundled WLR/next generation WBA wholesale input without prior notification to ComReg. Regardless of the option chosen we favour the maintenance of an appropriate economic space between LLU and services such as WLR and VUA and Bitstream (legacy or NGA).

Q. 31 Which option do you consider is the most appropriate in relation to the treatment of WLR/VoIP, in the context of NGA, in the WPNIA and WBA markets over the next three to five years? If there is an alternative option which you consider relevant and which is not discussed above please describe it. Please provide reasons for your response.

11.7 Cost orientation and WACC

11.311 As already discussed above, we do not consider that a pure cost based approach is relevant in the context of the WBA market during the transition but it may be appropriate if the retail pricing constraint proves to be less than anticipated.

11.312 This subsection discusses when and where a cost orientation obligation may be considered appropriate in the context of NGA. The main points in this subsection are discussed under the following headings:

- How should assets be valued?
- Which type of cost model should be used to assess costs?
- Which cost standard is the most appropriate?
- Relevance of the current WACC in the context of NGA.

11.7.1 How should assets be valued?

11.313 In the First NGA Consultation we considered two options in the context of the valuation of assets. The two options were as follows:

- Historic costs; or
- Current cost equivalents.

11.314 In the historic cost basis assets are valued based on the actual cost of the assets on the date at which they were acquired. The values of assets are then adjusted over time to reflect changes in the prices of the asset. Under the historic-cost approach, the operator recovers the costs actually incurred in providing the products, services or associated facilities, plus a normal rate of return on the investment.

11.315 The current cost approach is based on what would be paid for assets if they were acquired today (the assets are re-valued on an annual basis). In the context of NGA, we noted that the cost of provision would be composed of a mixture of the depreciation of current generation (or legacy) assets such as trench or duct: the incremental cost of remediation of these assets and expenditure on new equipment, fibre optic cable etc. We also noted that initially, at least, there would be no difference between the current cost and historic cost of the two latter asset categories.

11.316 We consider that in the longer term, the key question is whether the asset is “replicable” or not. This point was also considered by the European Commission in its recent consultation on costing methodologies for access and as part of the NGA Recommendation. In section 3 of the Oxera Report, Oxera set out potential approaches to asset valuation based on the replicability of the access network assets. This table is set out below.

Figure 10: Replicability of access network assets and potential approaches to asset valuation

Asset	Replicability	Potential costing approach
Duct	Non-replicable	HCA/renewals accounting
Copper loop (Distribution and Exchange side)	Partly stranded	HCA or CCA
Active access electronics	Replicable	CCA
Fibre loop	Non-replicable	CCA/Rolling forward RAB

Source: Oxera Report

11.317 Where there is the prospect for efficient entry, access prices may be set so as to provide efficient buy-or-build decisions. This may suggest adopting the CCA approach to the valuation of replicable assets.

11.318 On the other hand, where there are reasons to believe that entry by competing access providers is unlikely or where alternative investment has already taken place, it may be necessary to consider the price that the consumer would pay. In essence, provided the wholesale prices allowed for the recovery of efficiently incurred costs that could be sufficient for those non-replicable assets.

11.319 While it is possible to use different methods for different assets, the key is consistency. Switching between methods runs the risk that the SMP operator may not recover its efficiently incurred costs, or risks undermining entry decisions or roll-out plans by entrants.

ComReg's approach:

11.320 If and when a pure cost plus approach is introduced in the context of NGA in the WBA market, we will consider the appropriate asset valuation basis for new NGA assets.

11.7.2 Which type of cost model should be used to assess costs?

11.321 In the First NGA Consultation, we considered that there were two options available for cost models:

- A Top Down (“TD”) model; or
- A Bottom Up (“BU”) model.

11.322 A TD model typically relies on the costs actually incurred by the operator to estimate the costs of services but the main issue is that the TD approach is a backward-looking approach. However, while this might be the most accurate and desirable way to assess cost recovery, as the NGA rollout is new investment over the next five years or so, the availability of top down information may be limited and the timeliness of the information for setting appropriate regulatory prices may be an issue. Therefore, incumbents and regulators may be required to use bottom up models based on the best available information taking into account the actual costs incurred as the roll out takes place.

11.323 BU models can better reflect the choices of a hypothetical, forward-looking efficient operator from both a technical and an operational point of view. We also highlighted in the consultation that BU models are better suited than TD models to provide an appropriate “Build/Buy signal” to the market. This point may be particularly relevant for the transition from copper to fibre, since the BU model more closely reflects the costs of a new entrant in the infrastructure market. The BU approach is also consistent with the model constructed in the context of current generation based LLU. Therefore, the BU option would be more consistent with the regulatory objectives of encouraging infrastructure investment.

11.324 We consider that a hybrid model is based on historical costing information from Eircom and where a number of efficiency adjustments are made to the underlying operating costs.

ComReg's approach:

11.325 If and when a pure cost plus approach is introduced in the context of NGA in the WBA market, we will consider the most appropriate cost model to adopt.

11.7.3 Which cost accounting method is the most appropriate?

11.326 In the First NGA Consultation, we set out two alternative regulatory cost accounting methods that may be used to determine the cost of access services, as follows:

- FDC, also known as fully allocated costs (“FAC”)
- Forward Looking Long-run Average Incremental Costs (“FL-LRAIC”).

11.327 We discussed the fact that the FDC methodology allocates all the operators’ costs present in their financial information to all the services, products or regulated operations of the company.

11.328 The FL-LRAIC methodology “calculates the cost of providing a defined increment of output, on the basis of forward looking costs incurred by an efficient operator”¹⁴³. The increment is defined by the ERG’s Common Position as “the additional cost a firm incurs in the long run in providing a particular service as a whole, assuming all its other production activities remain unchanged”. The BU-LRAIC plus methodology was used to determine the relevant costs of the local loop copper network or LLU.

11.329 We also considered the “LRAIC plus” approach. This cost accounting method includes all of the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned, plus an apportionment of joint and common costs. ‘LRAIC plus’ includes appropriate amounts of variable, fixed and common costs, which is the calculus faced by any operator when deciding to enter or expand. ‘LRAIC plus’ includes a mark up to allow recovery of fixed and common costs often using an equi-proportionate mark up (“EPMU”).

11.330 We consider that a fully distributed cost allocation linked with the historical costs accounting method may be chosen where low retail prices are favoured. This approach gives a cost signal which is closer to the internal cost the incumbent incurs in providing the given wholesale product/services.

11.331 On the other hand an incremental cost allocation linked with a CCA method or tilted annuities may be chosen where infrastructure-based competition and the roll-out of ultra-fast broadband networks are favoured. This approach would give a cost signal which is closer to the average cost an efficient operator incurs in providing the given wholesale product/service.

ComReg's approach:

11.332 If and when a pure cost plus approach is introduced in the context of NGA in the WBA market, we will consider the appropriate cost accounting method to adopt for NGA.

¹⁴³ ERG Common Position: Guidelines for implementing the Commission Recommendation C (2005) 3480 on Accounting Separation and Cost Accounting Systems under the regulatory framework for electronic communications .

11.7.4 Relevance of the current WACC in the context of NGA

11.333 In the First NGA Consultation, we considered whether the current WACC for current generation products was also relevant in the context of the deployment of NGA.

11.334 Recital 14 of the NGA Recommendation recognises the fact that:

"Cost-oriented prices imply a reasonable return on capital employed...."

11.335 Given that we consider that a margin squeeze approach is the appropriate form of price control over the short to medium term for NGA services, it is not considered necessary at this time to carry out a detailed review of the appropriate WACC (in the context of NGA).

11.336 If a pure cost based approach for NGA in the WBA market is introduced at some point in the future, we may then consider a review of the current WACC in this context.

ComReg's approach:

11.337 Given the limited relevance of a WACC revision in the current context, it may not be proportional to undertake a detailed assessment at this stage.

11.8 Co-investment/risk sharing options

11.338 This subsection discusses the relevance of co-investment/risk sharing to NGA and the appropriate options, which are discussed in turn under the following headings:

- Relevance of co-investment/risk sharing to NGA
- Potential co-investment/risk sharing arrangements.

11.8.1 Relevance of co-investment/risk sharing to NGA

11.339 Paragraph 11 of the NGA Recommendation notes that: “Co-investment covers different legal arrangements, but typically co-investors will build network infrastructure and share physical access to that infrastructure.”

11.340 Co-investment opportunities may share the risk and cost faced by each respective party in the arrangement. Consequently, co-investment arrangements may incentivise investment in business ventures that might not otherwise occur (or on a smaller scale) due to the initial financial outlay or perceived financial risk.

11.341 As such, we consider that co-investment opportunities should be encouraged and explored by interested parties.

11.342 The terms and conditions of co-investment agreements are an outcome of commercial negotiations between parties. However, in order to ensure regulatory consistency such co-investment agreements will be subject to review and approval by ComReg (e.g. the regulatory principle of non-discrimination would be relevant in the context of any volume discounts — in particular if any co-investment agreements are reached with Eircom’s retail arm).

11.8.2 Potential co-investment/risk sharing arrangements

11.343 Set out below are the typical co-investment/risk sharing arrangements which have been discussed in public documents to date and where ComReg would be interested in receiving the views of stakeholders on in the context of the Eircom investment in NGA, if there are other options please set these out in your response:

1. An OAO takes a percentage stake in the NGA investment and does not pay any rental charge on its volumes over a set period of time;
2. An OAO takes a percentage stake in the NGA investment and pays a rental charge on its volumes in excess of the forecasts from the initial agreement;

3. An OAO takes a percentage stake in the NGA investment and pays a rental charge on all its volumes but gets revenues from rentals; and
4. An OAO takes a percentage stake in the NGA investment financed by a capital instalment and lower rental charge on all of its volumes.

11.344 These are discussed in turn below:

1. An OAO takes a percentage stake in the NGA investment and does not pay any rental charge on its volumes

11.345 Under this scenario, an OAO (say OAO 'A') takes a percentage stake in the NGA investment. The quantum of the investment by OAO 'A' may be based on the derived value and volumes it expects to attain as a result of the NGA investment in the medium to long term. OAO 'A' will not incur a rental charge on any volumes it actually attains. Consequently, OAO 'A' may adjust its derived value of its investment based on this arrangement (i.e. irrespective of its actual volumes attained OAO 'A' has lower risk — in that there is no rental charge on its volumes).

11.346 Both parties are now sharing the capital risk of the NGA investment and both parties will face their own commercial risk as a result of the agreement.

11.347 Where OAO 'A' volumes are lower than forecast, OAO 'A' will have incurred an artificial loss — in that the value of its capital investment (and resulting percentage of its stake) would have been lower (and cheaper) had it accurately forecasted its volumes and its resulting valuation. Eircom would artificially benefit from an opportunity gain in this scenario as its capital outlay would have been actually lower than if OAO 'A' had accurately calculated its investment valuation.

11.348 Where OAO 'A' volumes are higher than expected, OAO 'A' will artificially benefit from the opportunity gain — in that the implied valuation of its capital stake is higher than actually invested. Consequently, Eircom will have incurred an artificial loss as its capital investment should have been lower than if both parties had accurately derived the valuation of the NGA investment. Furthermore, Eircom cannot recoup any rental charges from the actual volumes attained by OAO 'A' and as a result faces a further loss of revenue foregone as a result of the agreement.

11.349 The risk with this option is that an OAO would always have incentives to lower its share of co-investment.

2. An OAO takes a percentage stake in the NGA investment and pays a rental charge on its volumes in excess of its forecasts

- 11.350 Under this scenario, OAO 'A' takes a percentage stake in the NGA investment. The quantum of the investment by OAO 'A' may be based on the derived value and volumes it expects to attain as a result of the NGA investment in the medium to long term. OAO 'A' will incur a rental charge on actual volumes in excess of its forecasted amount. Consequently, OAO 'A' may adjust its derived value of its investment based on this arrangement.
- 11.351 Both parties are now sharing the capital risk of the NGA investment and both parties will face commercial risk as a result of the agreement.
- 11.352 Where OAO 'A' volumes are lower than forecast, OAO 'A' will have incurred an artificial loss — in that the value of its capital investment (and resulting percentage of its stake) would have been lower (and cheaper) had it accurately forecasted its volumes and its resulting valuation. Eircom would artificially benefit from an opportunity gain in this scenario as its capital outlay would have been actually lower than if OAO 'A' had accurately calculated its investment valuation.
- 11.353 Where OAO 'A' volumes are higher than expected, OAO 'A' will artificially benefit from the opportunity gain — in that the implied valuation of its capital stake is higher than actually invested. Consequently, Eircom will have incurred an artificial loss as its capital investment should have been lower than if both parties had accurately derived the valuation of the NGA investment. However, Eircom would benefit from the increased rental charge it attains from the increase in residual volumes of OAO 'A' and OAO 'A' would have to pay these increased rental charges.
- 11.354 In such a case, incentives to co-invest may be too low. This option could be modified as follows:
- to allow OAO 'A' to further co-invest ex post rather than paying a rental charge;
 - To allow OAO 'A' to pay the rental charge only if the number of customers it has is significantly higher than its share of co-investment (for example, if its share of co-investment is 20% and its market share is 21%, then no rental charge is due).

3. An OAO takes a percentage stake in the NGA investment and all investor pay a rental charge on all their volumes which is then shared between co-investors

- 11.355 Under this scenario, OAO 'A' takes a percentage stake in the NGA investment. The quantum of the investment by OAO 'A' may be based on the derived value and volumes it expects to attain as a result of the NGA investment. OAO 'A' will incur a rental charge on actual volumes attained. Consequently, OAO 'A' may adjust its derived value of its investment based on this arrangement (i.e. OAO 'A' has not been able to mitigate any of its commercial risk as it faces a rental charge on all of its volumes).
- 11.356 Both parties are now sharing the capital risk of the NGA investment but both parties do not face commercial risk as a result of the agreement.
- 11.357 Where OAO 'A' volumes are lower than forecast, OAO 'A' will have incurred an artificial loss — in that the value of its capital investment (and resulting percentage of its stake) would have been lower (and cheaper) had it accurately forecasted its volumes and its resulting valuation. Furthermore, unlike option 3 above, OAO 'A' now incurs a rental charge on its actual volumes but gets a proportion of rental charges paid by all operators including co-investors. As a consequence, the OAO is not facing losses due to its commercial non success. Eircom would artificially benefit from an opportunity gain in this scenario as its capital outlay would have been actually lower than if OAO 'A' had accurately calculated its investment valuation. However, Eircom would pay more rental charges.
- 11.358 Where OAO 'A' volumes are higher than expected, OAO 'A' will artificially benefit from the opportunity gain — in that the implied valuation of its capital stake is higher than actually invested. It will therefore pay more rental charges which will offset this opportunity gain.
- 11.359 This option may give too low incentives for OAOs to be commercially active but this option allows a limit to the risks faced by the co-investors because the risk of commercial non success is partly eliminated.

4. An OAO takes a percentage stake in the NGA investment financed by a capital instalment and lower rental charge on all of its volumes

- 11.360 Under this scenario, OAO 'A' takes a percentage stake in the NGA investment. The quantum of the investment by OAO 'A' may be based on the derived value and volumes it expects to attain as a result of the NGA investment. OAO 'A' percentage stake will be financed in two tranches. The first tranche will be financed by a capital injection (say 50%) by OAO 'A', the second tranche will be financed through a rental charge on actual volumes attained by OAO 'A'. The higher capital injection is, the lower the rental charge could be. The rental charge revenues would be shared amongst co-investors.
- 11.361 Both parties are now sharing the capital risk of the NGA investment however, with respect to the other scenarios identified above (i.e. options 2 and 3) both parties will face a lower commercial risk as a result of the agreement. This is due to the fact that, irrespective of the actual volumes attained by OAO 'A', the quantum of the rental charge over time will equal the residual value of OAO 'A' investment stake (in this case the remaining 50%). The rental charge incurred by OAO 'A' would probably be lower than that under previous scenarios (which would reflect the lower risk by OAO 'A' and Eircom).

ComReg's preliminary conclusions:

- 11.362 Eircom will be obliged to ensure that where it offers lower access prices to the unbundled fibre loop in return for up-front commitments on long-term or volume contracts, that such prices will not be unduly discriminatory. Therefore, Co-investment or risk sharing agreements between parties, with respect to NGA investments, will be subject to pre-notification to ComReg.

Q. 32 Which option do you consider may be appropriate regarding potential co-investment in the context of NGA? Please provide reasons for your response.

11.9 Migration charge options - WPNIA and WBA Markets

11.363 This subsection considers the importance of migration both in terms of the copper network and of the fibre network, the timeliness of such migration and the relevant options. The main points are discussed under the following headings:

- Non-discrimination
- Migration options
- Appropriate incentives to migrate.

11.9.1 Non-discrimination

11.364 Before discussing the appropriate options in terms of migrations, we consider that the obligation of non-discrimination is very relevant in the context of migrations, both in terms of the WPNIA and WBA markets.

11.365 In addition, we consider that it is important that Eircom do not price discriminate on the basis of migration charges for current generation products against migration charges for NGA based products and that they do not create a barrier for OAOs that either have recently invested or are wishing to invest in the broadband market. This is discussed in more detail below.

11.366 We also consider that Eircom should not price discriminate between operators by virtue of an operators size. All operators should be treated equally as part of the migration process.

11.9.2 Migration options

11.367 In early 2011, Eircom reviewed the processes and related costs of ancillary charges for LLU and Bitstream current generation based products. This included a review of the migration process between the various services, i.e. from Bitstream to Line Share (or LLU) and from Line Share to LLU, and the related cost reductions. As a result of this review, the migration charges for LLU and Bitstream were reduced to an average charge of €15, as set out in Information Notice No 11/20¹⁴⁴.

11.368 However, the migration process to date for current generation based services, in particular for migrations up the ladder of investment has not worked well in the past two years and while the actual processes have improved the pricing of migrations remains a key issue and possibly a barrier to investment.

¹⁴⁴ Local loop unbundling (LLU) and Bitstream: Eircom's proposal to reduce ancillary charges; 10 March 2011.

- 11.369 The decision to build a broadband network to avail of LS or LLU is an expensive one. The high upfront cost however should ensure that the large customer base required to finance this investment can be acquired quite quickly, either by moving customers from current generation based services or by acquiring new customers with value add services at cheaper prices. The migration of these customers from current generation services to NGA services only adds to the cost and without certainty on how the migration pricing will be set over the next five years investment plans could be delayed.
- 11.370 The existing migration charge of €15 per customer can give rise to significant cash outflows in any given month where a large number of customers are migrated and this can distort investment decisions. While the costs may be immaterial to the incumbent in overall terms they can be quite material to the operator entering or moving up the ladder of investment. This cost might be exacerbated where there is a further migration charge from current generation services to NGA services, in a short space of time thereby eroding any margins possible from those retail customers.
- 11.371 We have therefore considered a number of options for determining the most appropriate mechanism for setting migration charges to ensure that Eircom recovers the cost of the migration process while at the same time operators are not disincentivised from investing.
- 11.372 Before discussing each of these options there is another point for consideration as part of this consultation on whether the cost of migrations should be based on either:
- A one-off charge; or
 - As part of a recurring monthly charge.
- 11.373 Eircom proposes to include the cost of migrations (including connection costs where appropriate) as part of the recurring charge for VUA. However, this is inconsistent with the current approach for migrations for current generation products e.g. LLU, where a separate migration charge is imposed.
- 11.374 We would welcome the views of industry on whether a one-off migration charge should be imposed or whether the cost of migrations should be included as part of the recurring monthly charge for migration of current generation and fibre based products in the WPNIA and WBA markets.
- 11.375 We consider that where the cost of migrations are relatively small that a one-off charge may be more appropriate but where the migration cost is more significant that it should be recovered as part of the recurring monthly charge.

11.376 We consider that there are a number of options in terms of the recovery of the cost of migrations by Eircom. These options are as follows:

- Option 1: Universal migration charge
- Option 2: Migration charge depending on the stage of investment
- Option 3: Distinct migration charges for current generation and for next generation

Option 1: Universal migration charge

11.377 This option would mean one common or universal charge regardless of whether the migration was between current generation and next generation products and services and regardless of the type of service.

11.378 The likely cost of migrations (including connection costs where appropriate) for all current generation and NGA products/services in the WBA and WPNIA market over a period of time would be required as well as the likely volume of migrations during this same period, including all access paths likely to be served by NGA. A universal charge would be set, following review of the relevant data by ComReg and a cross-check to Eircom's Regulated Accounts would be carried out annually to ensure that there is no over or under recovery of costs on the part of Eircom. This may result in a revised charge and/or refunds to operators who may have been overcharged during the period.

11.379 This option would ensure that during the transition operators migrating between current generation based services are not unduly discriminated against compared with those operators migrating to NGA based products and services. In addition, we consider that this option should not act as a barrier to investment for OAOs. Furthermore, it may serve to eliminate distortions in OAO behaviour caused by different migration charges for different services. On the other hand while the charges would be cost oriented in aggregate they may not be cost oriented in respect of every migration process which arguably may result in economically inefficient pricing signals.

11.380 The approach for setting the migration charge in this option would be similar to the one used in setting the interconnection charges in 2003/04¹⁴⁵, in ComReg Document No 04/101, where the costs are spread across all lines. However, this approach should only be applied to those access paths relevant to the likely NGA footprint (NGA Footprint Areas), so that copper based services in non-NGA areas are not included. This would mean that the migration costs would be spread across the number of access paths in the NGA Footprint Areas to arrive at the migration set-up charge. The NGA Footprint Area has been described previously.

Option 2: Migration charge depending on the stage of investment

11.381 This option would mean that the migration charge would depend on the stage of the ladder of investment which the operator is on.

11.382 For example, a distinct migration charge may be applied where the operator is migrating between Bitstream services and another charge where an operator is migrating from Bitstream to LLU or from LLU to VUA.

11.383 This approach would take account of the extent of physical activity involved, for example jumpering the line may be required at the exchange or cabinet for each of the migration processes.

11.384 We consider that the different charges may dis-incentivise investment by operators.

Option 3: Distinct migration charges for migrations to current generation and for next generation migrations

11.385 This option would be consistent with the principle of "cost causation", where costs should be allocated on the basis of the factors that cause the costs to be incurred. However, we believe that having different migration charges between current generation and NGA services may act as a barrier to investment by OAOs and may in fact disincentivise infrastructure investment. Decisions to invest and where to invest should be based on commercial factors rather than one-off regulatory charges from the incumbent.

11.386 This option would mean that the status quo would remain in place for the migration charges for current generation based products and services in the WBA and WPNIA market.

¹⁴⁵ ComReg Document No 04/101 (Decision No D14/04): Decision Notice and Response to Consultation - Response to Consultation (04/69) and Decision Notice on finalisation of the 2002/03 Interim Interconnect Conveyance Rates; 23 September 2004.

11.387 A separate migration charge would be calculated for migrations to the NGA products and services. We consider that the migration charges for NGA should be based on the expected cost of migrations divided by the total number of access paths likely to be served by FTTC/FTTH. This would also be subject to any pre-approved pricing incentives Eircom may wish to offer.

11.388 We consider that whatever option is chosen above that it must ensure that no one operator is unduly discriminated against while at the same time Eircom should recover all of its costs over the medium term.

11.9.3 Appropriate incentives to migrate

11.389 Where appropriate the migration price structure should incentivise efficiency and early adoption. One such potential incentive may be to offer discounts to “early-adopters”. However, given some of the uncertainties associated with NGA, we would not expect there to be a punitive migration price structure for “late-adopters” particularly during the transition.

11.390 The decision to migrate is a commercial decision for operators, consequently some OAOs may adopt a “wait and see” approach — this is a commercial reality and one that cannot be avoided — as such, it would be up to Eircom to encourage and incentivise adoption by those OAOs. However, a lower upfront migration charge is not the main driver in terms of the OAO decision to migrate to NGA in the long term. For some OAOs it will also be important to “wait and see” that the processes are proven to work well before they make the decision to migrate their customer base to NGA.

11.391 However, as set out below, we are minded to introduce a sunset period after which a higher migration charge may be introduced for operators that remain on the old network and which gives rise to higher network costs for Eircom.

11.392 While we would not consider it appropriate for Eircom to force the migration of OAO customers onto the fibre-based network during the transition, if and when the new network is fully rolled out to the NGA areas and all relevant services are supported over the new network, then operators should be incentivised to migrate to the new network.

11.393 It is likely that there will be some customers in NGA areas that may not necessarily get fibre and hence the current generation copper network will remain relevant for these customers. Likewise, some customers will only require a voice only service, where the continued use of the copper network will be required.

- 11.394 Once the fibre network is in place, in the NGA Footprint Areas, and it fully supports all the relevant services of operators, then Eircom may consider setting its migration charges in such a way that it incentivises the move to fibre as soon as possible. This may include the possibility where there is no upfront migration charge, for early adopters, but where the actual costs are instead recovered as part of the recurring fee over the longer-term, so long as it is non-discriminatory. However, where this is the case, we consider that there must be a consistent pricing approach across all services, both current generation and next generation.
- 11.395 In the event that operators do not migrate to the new fibre network during the transition, it may be necessary to consider an incremental cost approach for the cost of running the copper network. This may be appropriate in cases where Eircom are forced to run two networks in parallel to facilitate the service provision of an alternative operator(s) who have not taken the commercial decision to migrate to the new fibre network. Under these circumstances, the additional incremental cost to Eircom of running the copper network may be charged to the operators who remain on the copper network.

ComReg's preliminary conclusions:

- 11.396 Eircom will be obliged to offer cost oriented migration charge(s) for all current generation and next generation regulated services related to the WPNIA and the WBA market.
- 11.397 Eircom will be obliged to base the migrations on a universal charge where the likely cost of migrations (including connection costs where appropriate) for all current generation and next generation products/services in the WBA and WPNIA market over a period of time would be divided by the likely volume of migrations during this same period, including all retail and wholesale access paths likely to be served by FTTC/FTTH.
- 11.398 A cross-check to Eircom's Regulated Accounts will be carried out annually to ensure that there is no over or under recovery of costs on the part of Eircom. This may result in a revised charge and/or refunds to operators who may have been overcharged during the period.
- 11.399 Eircom will be obliged to ensure that the migration charges are not regarded as unduly discriminatory.
- 11.400 In the event that operators do not migrate to the fibre network during the transition, Eircom may be allowed to charge operators the incremental cost of running the copper network in addition to the fibre network.

Q. 33 Do you believe whether a one-off migration charge or whether the migration costs (including connections where appropriate) should be included as part of the recurring monthly charges for the various products and services in the WBA and WPNIA markets is more appropriate? Please provide reasons for your response.

Q. 34 Do you agree that a universal migration charge (Option 1) is the most appropriate option for migrations in the WPNIA and WBA markets? Please provide reasons for your response.

11.10 NGA Margin Squeeze Model

11.401 In subsection 11.6.2 we discussed the relevant principles and methodologies that should apply in the context of the margin squeeze tests.

11.402 This section discusses the main cost inputs to the NGA Margin Squeeze Model for each of the margin squeeze tests and the outputs derived from the Model. ComReg, with the assistance of TERA, have populated the NGA Margin Squeeze Model which includes the four relevant margin squeeze tests which are discussed further below. Eircom will be provided with the NGA Margin Squeeze Model as part of this decision and it will be obliged to ensure compliance with it. This is discussed in more detail later in this section.

11.403 The main points in this section are discussed under the following headings:

- Retail to wholesale NGA Bitstream (and the End-to-end Next Generation Bitstream where it is provided) margin squeeze test
- Wholesale margin squeeze test from End-to-end Next Generation Bitstream to NGA Bitstream
- Wholesale margin squeeze test from NGA Bitstream to VUA
- Wholesale margin squeeze test from VUA to SLU
- Outputs from the NGA Margin Squeeze Model.

11.10.1 Retail to wholesale NGA Bitstream (and End-to-end NG Bitstream) margin squeeze test

- 11.404 In subsection 11.4.3 we proposed that Eircom will be obliged to comply with the ex-ante retail margin squeeze test in the context of the WBA market in the NGA Footprint Areas.
- 11.405 We also considered earlier that in general the SEO test was the most appropriate cost base to apply in the context of the retail margin squeeze test and this is consistent with ComReg Decision D01/06. However, we also noted that there may be some retail cost categories where an EEO approach should be considered and that we would consult on this point.
- 11.406 One of the key areas for consideration in determining the appropriate margin between the retail broadband market and the wholesale broadband market is the appropriate retail costs.
- 11.407 In subsection 11.6.2, we discussed the retail costs that were relevant in the context of the retail minus for WBA based on ComReg Decision D01/06. We identified a number of retail cost categories, such as marketing and sales costs, backhaul costs, modem costs and IP connectivity costs, which we consider may differ in the context of NGA, compared with current generation broadband services.
- 11.408 The table below sets out the main retail costs that are relevant in the context of current generation broadband services, based on ComReg Decision D01/06, as well as our assessment of the retail costs that we believe remain relevant in the context of NGA. We have also set out our assessment of the nature of the retail costs, be it fixed or variable, as well as our assessment of those cost categories most susceptible to economies of scale and scope.
- 11.409 While the most recently available HCA accounts may be used as a starting reference point for some of the more fixed retail costs e.g. billing costs, a cross check for those retail costs that will vary in the context of NGA will need to take place when next years' HCA accounts are available, and each year thereafter.
- 11.410 It is worth noting that the retail cost information used in the NGA Margin Squeeze Model is largely based on data provided by Eircom, cross checked with some costing information obtained from other operators for comparable purposes.

11.411 Where an operator(s) disagree with our assessment of the retail costs provided in the table below, then they should provide ComReg with the relevant costing or other information, as part of this consultation process, in order to justify their reasoning. Any information provided by other operators will be considered by us as part of any final decision it may take regarding the relevant level of retail costs in the context of NGA. Information obtained in this regard will be treated in a confidential manner.

Figure 11: Assessment of Eircom's retail costs relevant for NGA

Retail cost categories per D01/06	Retail costs per D01/06 which are likely to materially change in context of NGA	Fixed or variable to the number of NGA lines	Susceptible to economies of scale/scope
Marketing	Yes	Fixed	Yes
Sales	Yes	Variable	Yes
Product management and development	Yes	Fixed	Yes
Accommodation	No	Fixed	No
Help desk	Yes	Fixed	No
Billing	No	Fixed	Yes
Modems	Yes	Variable	Yes
Order handling	No	Variable	No
Backhaul charges	Yes	Fixed	No
Servers and collocation	No	Fixed	No
Corporate	No	Fixed	No

Retail cost categories per D01/06	Retail costs per D01/06 which are likely to materially change in context of NGA	Fixed or variable to the number of NGA lines	Susceptible to economies of scale/scope
overhead			
Internet connectivity	Yes	Fixed/Variable	Yes
Wholesale connection	No	Fixed	No
Migration charges	?	Fixed/Variable	Yes

11.412 The main points on the retail costs are discussed under the following headings:

- Marketing and sales
- Help desk costs
- IP connectivity costs
- Modem costs (incl. installation costs)
- Multicast costs.

Marketing and sales:

11.413 The marketing and sales costs, include the following:

- One-off start up costs
- Ongoing costs
- Campaign costs (initial costs and promotion costs).

11.414 We consider that the initial campaign costs in the context of NGA include the customer acquisition costs. Customer acquisition costs could be significant, especially if the customer being acquired is on an alternative fixed broadband platform i.e. cable.

11.415 In order to inform the level of retail costs deemed reasonable for a retail margin squeeze test, we welcome the views of industry on the typical customer acquisition costs. In this regard, we consider that the following information would help inform our decision:

Figure 12: Customer Acquisition Costs

Scenarios for customer acquisition costs	Customer Acquisition Costs
	Ranges include: €0 - €50, €50 - €100, €100 - €150 Etc.
Customer being acquired is with another fixed telecoms provider	[Please insert the relevant range]
Customer being acquired is with a mobile provider	[Please insert the relevant range]
Customer being acquired is on an alternative platform	[Please insert the relevant range]
Any other scenario that is relevant?	[Please insert the relevant range]

11.416 One of the other more significant costs from a marketing and sales perspective is campaign/advertising costs. Given that NGA will only initially be rolled out to a number of NGA areas we believe that the advertising campaign will be more niche market focused rather than a national advertising campaign.

11.417 For example, the advertising costs contained within 'marketing and sales' may lend itself to an EEO approach within the SEO model where operators such as Vodafone, O2, BT, UPC etc have a large customer base and extensive product set over which to spread the cost of its national advertising campaigns.

11.418 If we were to base the advertising costs on the basis of an EEO, this would reduce the retail cost stack in the NGA Margin Squeeze Model.

11.419 Eircom's EEO proposal may bear some relevance in this regard given the fact that other large telecoms operators in the market in Ireland may have the capacity or scope to spread their advertising costs across a relatively significant product base, similar to Eircom. We welcome the views of industry on this proposal.

11.420 For the moment, the draft decision instrument for WBA is based on an entire SEO cost base pending the outcome of the consultation and the views of respondents in terms of ComReg's proposal regarding an EEO cost base for advertising costs.

Help desk costs:

11.421 Help desk costs were also considered by us as part of the review of the retail costs in the context of NGA. Given the transition to the new NGA technology, we consider that help desk costs may increase in the early stages of product launch, once the NGA services are rolled out and customers are migrated over. The cost of help desk facilities could be significant, at least initially while the customer familiarises itself with the new equipment and software. A large portion of this cost will also depend on the nature of the installation programme from Eircom and OAOs and how seamless the migration will be.

11.422 While it is difficult to estimate a likely annual cost in the NGA Margin Squeeze Model for costs not yet incurred, we would welcome views, together with financial estimates from industry of the likely costs they will incur during the migration process and post the migration process based on expected take up.

IP connectivity:

11.423 The IP connectivity costs include the cost of transit and peering for internet protocol ("IP") traffic on Eircom's network.

11.424 Internet transit is the service of allowing network traffic to cross or "transit" a computer network, usually used to connect a smaller Internet service provider ("ISP") to the larger Internet. Transit is distinct from peering, in which only traffic between the two ISPs and their downstream customers is exchanged and neither ISP can see upstream routes over the peering connection. The transit service is typically priced per megabit per second per month, and customers are often required to commit to a minimum volume of bandwidth, and usually to a minimum term of service as well.

11.425 IP connectivity depends on the commercial decision of operators in terms of the split between transit and peering and the rates that they can negotiate for committed bandwidths of data.

- 11.426 The bandwidth per subscriber is the cost drivers for IP connectivity retail costs in the NGA Margin Squeeze Model for the retail margin squeeze test.
- 11.427 We have used the information provided by Eircom but we have also cross checked it to information received from another operator.
- 11.428 The IP connectivity costs can be quite material, depending on the volume of traffic an operator can commit to. Larger operators are obviously in a much better position to negotiate with carriers internationally and avail of a cheaper cost per Mbps. There are a number of operators based in Ireland with international contracts and some operators can also leverage from their parent companies who can negotiate favourable global rates. Therefore, for any particular operator the unit cost per customer per month can vary significantly and in particular when considering likely new services and traffic volumes in the context of NGA services.
- 11.429 We welcome the views of industry regarding the proposal for setting the IP connectivity costs in the context of NGA.

Modem costs (incl. installation costs):

- 11.430 We consider that the cost of modems and installation costs (or customer premises equipment) will be much more expensive for NGA services compared to current generation broadband services.
- 11.431 The current modem costs included in the NGA Margin Squeeze Model for the retail margin squeeze test are based on manufacturers' offers to Eircom for modems in the context of NGA. This has also been compared with information obtained from an OAO in order to ensure that the relevant input is comparable with the modem costs incurred by other operators in the context of NGA.
- 11.432 It is currently not clear whether an Eircom network technician will be required to visit the customer premises, and install and test the appropriate network termination unit or whether this will be carried out by the OAO. In any event, these costs are one-off and would not be required a second time if the end user were to transfer to a different VDSL provider, or even to migrate to a service provided over unbundled sub-loops. We would welcome the views of industry on the likely costs of installation (including modem costs), regardless of who is required to install it.
- 11.433 The unit cost per month per customer for installation can vary materially depending on the negotiated rates that operators have or may achieve with manufacturers. Again, similar to the IP connectivity cost, large companies may be able to avail of similar deals to Eircom based on their parent company's ability to negotiate deals.

11.434 Up until now the retail equipment costs for the current generation broadband services, from ComReg Decision D01/06, were written off over a period of 42 months. However, we consider that a longer period may be more appropriate in the context of NGA. For example, 5 years may be more appropriate timeframe to write off the modem costs.

11.435 As the costs of technicians visiting the customer premises, are one-off and would not be required a second time if the end user were to transfer to a different VDSL provider, or even to migrate to a service provided over unbundled sub-loops, a longer depreciation period of 20 years seems more appropriate. However, these costs are part of the migration costs which have been included in the VUA cost stack.

Multicast costs:

11.436 The retail cost stack from D01/06 does not include any retail costs related to multicast services.

11.437 In the context of NGA, it is currently unclear whether Eircom will offer a multicast service as part of a retail offering. However, at some point in the future it is reasonable to assume that Eircom may include multicast services as part of a wholesale NGA offering. Multicast in the context of wholesale services are discussed below as part of the wholesale margin squeeze test between NGA Bitstream and VUA.

11.438 We consider that where multicast services are offered at a retail level that the typical retail costs would include the following:

- Multicast platform costs
- Marketing costs.

11.439 We would welcome the views of industry on the likely estimate of retail costs associated with the provision of multicast services.

ComReg's preliminary conclusions:

11.440 The retail costs determined in ComReg Decision D01/06 are relevant in the context of NGA but with amendments to take account of changes in such costs as marketing and sales costs, modem costs, IP connectivity costs, help desk costs and multicast costs.

11.441 There may be specific retail cost categories e.g. advertising costs that are susceptible to an EEO cost base in the context of NGA and we welcome the views of industry on this point.

- Q. 35 Do you agree with ComReg's preliminary views, as set out above in the table in Figure 11, regarding the retail costs in the context of NGA? Please provide reasons for your response.
- Q. 36 Do you agree that an EEO approach could be applied in the case of some retail cost categories (e.g. advertising), where other large network operators in Ireland are susceptible to similar economies of scope to that of Eircom? Please provide reasons for your response including examples of any specific retail costs that you believe are susceptible to EEO in the context of NGA, with detailed reasons and justification.
- Q. 37 Do you believe that an operator (OAO) can leverage its retail costs e.g. advertising costs from one part of its business i.e. mobile business to another part of its business i.e. fixed broadband business? Please provide reasons for your response.
- Q. 38 Do you agree with ComReg's preliminary view that help desk costs for Eircom (retail costs) in the context of NGA should be adjusted for the SEO unit cost scenario? Please provide reasons for your response.
- Q. 39 What do you consider would be the likely estimate of help desk costs during the migration process and post migration process based on an expected level of take up for NGA services? Please provide the details.
- Q. 40 Do you agree with the proposed approach taken for determining the IP connectivity costs for NGA services? Please provide reasons for your response.
- Q. 41 Do you agree that the cost of modems should be written off over 5 years and the cost of technicians visiting the customer premises should be written off over 20 years in the context of NGA? Please provide reasons for your response.
- Q. 42 What do you consider is a reasonable estimate of the likely installation costs involved with NGA services? Please provide the details as part of your response.
- Q. 43 What do you consider is a reasonable estimate of the retail costs associated with multicast services? Please provide the details as part of your response.

11.10.2 Wholesale margin squeeze test from End-to-end NG Bitstream to NGA Bitstream

11.442 As discussed earlier in the document, the End-to-end NG Bitstream product is the end-to-end resale, Next Generation Bitstream product which allows the Access Seeker to purchase Next Generation WBA without the need to have its own infrastructure for example Backhaul and ISP services.

11.443 Therefore, on top of the cost of the NGA Bitstream product, which is discussed in detail below, the End-to-end NG Bitstream costs in the NGA Margin Squeeze Model include the additional costs associated with additional NGN backhaul and IP connectivity costs.

11.444 It is proposed to base the associated backhaul costs on Eircom's Wholesale Ethernet Interconnect Link ("WEIL") product¹⁴⁶. In this context it is proposed to use the customer sited ("CSH") handover version of the WEIL product to handover traffic between a nominated point of handover and the ISP.

11.445 The proposed IP connectivity costs are based on an estimated forward looking throughput (based on Kbps peak hour usage), which is discussed in detail below as part of the NGA Bitstream costs. This cost is subject to change as user profiles evolves and actual throughput is measured.

ComReg's preliminary view:

11.446 The costs specific to the End-to-end NG Bitstream will be based on:

- Additional NGN backhaul costs; and
- IP connectivity costs.

Q. 44 Do you agree with the proposed approach for determining the cost stack for End-to-end Next Generation Bitstream? Please provide reasons for your response.

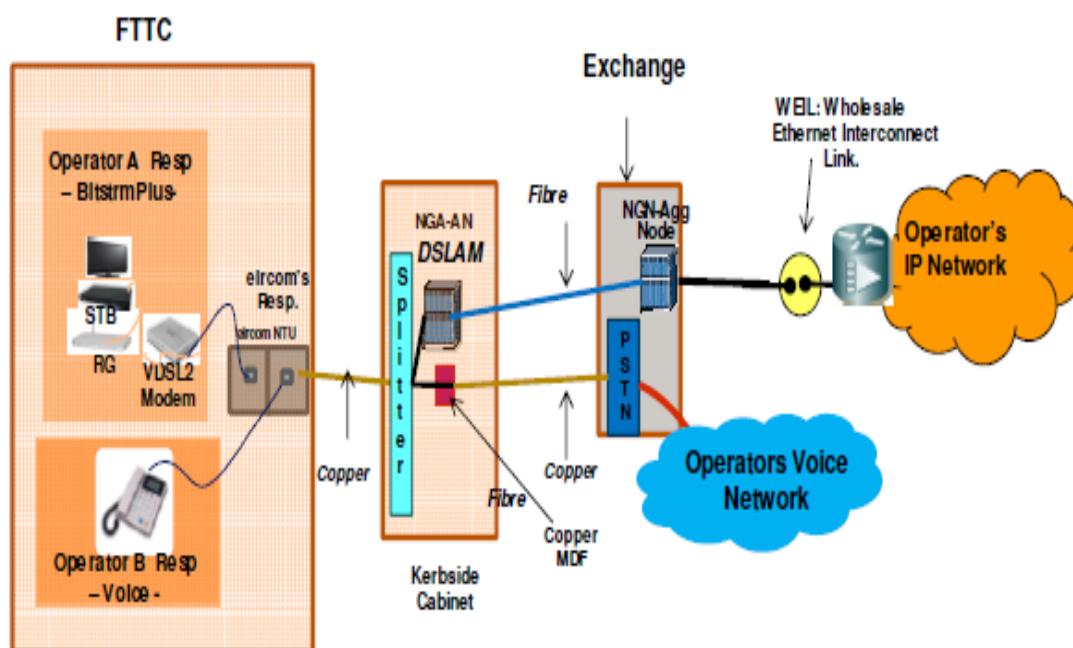
¹⁴⁶ Reference Eircom Wholesale Network Price List; Service Schedule 013 - Wholesale Ethernet Interconnect Link

11.10.3 Wholesale margin squeeze test from NGA Bitstream to VUA:

11.447 For an OAO in the NGA world, there will be two available wholesale products to offer broadband and other services over the top of that broadband network to its retail customer.

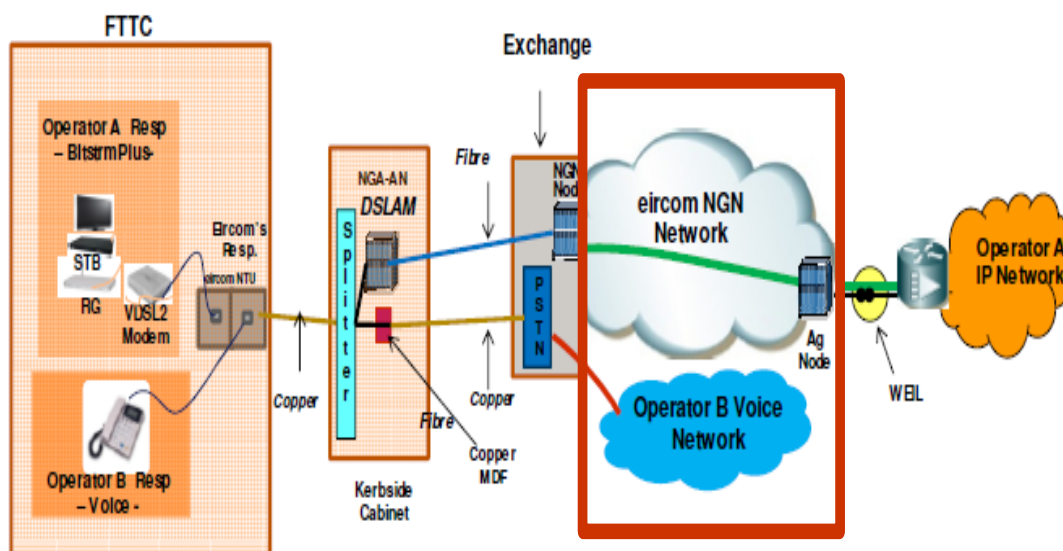
11.448 The first product is VUA where the OAO rents the line from the retail customer's premises to the exchange from Eircom. To get the customer's broadband data from the exchange, together with the broadband data of its other customers aggregated at that exchange, onto its own network, the OAO further rents a backhaul product, WEIL from the exchange to its own network. Therefore, with VUA, where an OAO has customers at many exchanges, it will require a WEIL line from each of these exchanges to its own network. This is represented graphically as follows:

Figure 13: VUA Network Structure



11.449 The second product is NGA Bitstream where the OAO rents the line from the retail customer'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 customer'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 customers at many exchanges, it may only require one WEIL line from the aggregation node to its own network. This is represented graphically as follows:

Figure 14: NGA Bitstream Network Structure



11.450 Therefore, the major difference between VUA and NGA Bitstream is that VUA requires an individual backhaul rental from each exchange whereas with NGA Bitstream Eircom aggregates all the OAO's broadband data on the Eircom network for a single point of handover for the OAO.

11.451 Consequently, considering ComReg's objective of encouraging infrastructure investment, it is critical that VUA investment by OAOs is promoted as there is less use of Eircom's own network with VUA. Consequently, the price for NGA Bitstream should always be higher than the price of VUA plus all its associated costs to get the customer's broadband data back to the OAO's own network.

11.452 As a result, the assumed cost for NGA Bitstream in the NGA Margin Squeeze Model is the sum of the VUA cost stack (this is discussed in the subsection below) plus the costs associated with getting the retail customer broadband data from each exchange onto its own network, namely:

- WEIL cost at each exchange aggregation node to the OAO own network because an OAO would need to connect VUA to its own network
- Backhaul costs
- Broadband remote access servers ("BRAS") and other applicable costs to aggregate and route the OAO's customers' data onto its own network.

- 11.453 These costs can be calculated using the current Bitstream 'cost-plus' model but with changes made to reflect the difference in peak hour kbps usage for NGA services, as opposed to current generation services. The current Bitstream 'cost-plus' model is based on current generation and NGN ADSL broadband services whereas with NGA there will be higher broadband speeds and more services offered over the top of the broadband network (e.g. multicast).
- 11.454 For example, moving from current generation (ADSL) to NGA (VDSL) may result in a doubling of port speeds i.e. from an ADSL 24 Mbps to VDSL 52 Mbps. As a consequence, we consider that the kbps peak-hour assumption needs to increase for NGA. An increase in kbps peak usage with increased port speed is already proven by recent ADSL 2 port speed upgrades, for example, it appears that kbps peak throughput for ADSL on the current generation (or legacy) network has increased to about 100kbs per second based on these recent port speed upgrades. However, we consider that where port speeds double, this generally generates a lower increase of kbps peak-hour rates.
- 11.455 Furthermore, kbps peak usage is expected to increase further in the future as more retail customers broadband port speeds are improved and with the inclusion of multicast services. For the purposes of determining relevant prices for NGA, we propose that broadband throughput at peak hour may increase to between approximately 140 kbps to 230 kbps for broadband over the next three years or so.
- 11.456 Therefore, we consider that between 140 and 230 Kbps over the period from 2012 to 2015 should be factored into the NGA Margin Squeeze Model in 2012. This is based on data obtained from Eircom and is also consistent with the WBA model but with an uplift applied for the higher speeds expected over NGA.
- 11.457 Furthermore, an increased kbps assumed peak usage will increase, for example, the required capacity of the WEIL backhaul line and other kbps related usage costs. We would welcome the views of industry on this approach.
- 11.458 While Multicast is a proposed mandated product in the context of WBA, at this point we are unclear what Eircom's plans are for multicast services at a wholesale level. The NGA Margin Squeeze Model will include the NGA Bitstream product with the option of including estimated costs with and without multicast.
- 11.459 We have considered a number of assumptions that may be appropriate for determining the cost of Multicast services and we would welcome your views as part of the consultation process.

11.460 We seek the views of industry on the following parameters:

- The number of standard definition channels and high definitions channels at the retail level;
- The bandwidth required in Mbps for a standard definition channel;
- The bandwidth required in Mbps for a high definition channel;
- The number of channels sent to the DSLAM and the number of channels sent to aggregation node (which allows us to dimension the backhaul from the aggregation node).

11.461 We consider that Multicast and broadband share the same backhaul. Therefore, it would be necessary to allocate the backhaul costs between multicast and broadband. By including multicast services, the backhaul costs will increase given that more capacity is required so the cost of the backhaul which is based on the wholesale Ethernet leased lines offer increases. However, this will reduce costs allocated to broadband.

11.462 In any event, where Eircom decides to provide Multicast services, the price for Multicast will be subject to the normal pre-notification procedures to ComReg and Industry. In addition, ComReg believes that where Multicast services are provided that Eircom should ensure that any pricing is non-discriminatory.

11.463 The views of Industry are sought regarding the proposed parameters set out above in the context of Multicast.

ComReg's preliminary conclusions:

11.464 The indicative costs for NGA Bitstream will be based on:

- VUA costs (discussed below)
- WEIL
- Backhaul costs
- BRAS
- Cost of providing multicast services, where it is requested.

11.465 The kbps peak hour usage for broadband will be factored in at between approximately 140 and 230 kbps per user over the period from 2012 to 2015 and this will be monitored at least annually to ensure it is up to date and representative of industry trends.

Q. 46 Do you agree with the proposed approach for determining the cost stack for NGA Bitstream? Please provide reasons for your response.

Q. 47 What are your views regarding the parameters for determining the relevant costs for a Multicast service. Please provide reasons for your response.

11.10.4 Wholesale margin squeeze test from VUA to SLU

11.466 In Section 3 of the Oxera Report, Oxera stated that a consistent application of margin squeeze principles means that where NGA is deployed, the price of LLU and SLU should be set with reference to the relevant NGA products and may need to be reduced in order to avoid a margin squeeze.

11.467 However, we consider that it would not seem reasonable to provide 'entry assistance' through an SEO-based Margin Squeeze test between VUA and SLU. However, we consider that the EEO costs of Eircom are relevant given that it is currently the only operator providing the SLU service and in general the same costs would apply if another SLU operator were to provide it. Therefore, generally there are no economies of scale or scope differences to be considered in this regard.

11.468 We consider that the costs for an SLU operator would be the same as the cost to Eircom. Therefore, the EEO costs would be based on Eircom costs for:

- The link between end users and cabinets i.e. the SLU monthly rental charge.
- The link between the cabinet and the exchange.

11.469 The main exception would be the cost of cabinets/DSLAMs and aggregation nodes, which are fixed costs, and would be more expensive for OAOs given the fact that they have lower economies of scale.

11.470 This section discusses the relevant cost inputs to determine the cost for VUA, so as to ensure a sufficient economic space with SLU. To clarify, this section seeks to evaluate the costs that must be incurred by Eircom, in addition to the cost of SLU (equivalent to its price) or FTTH as appropriate, in order to provide a VUA service. This can be used to set a maximum price for SLU and FTTH (and where appropriate for LLU) by deducting these costs from the price of VUA.

11.471 For multicast services, we have not incorporated any additional costs into the VUA cost stack in the NGA Margin Squeeze Model given that Eircom's plans are currently unclear in this regard. Similar to the point noted above in the context of NGA Bitstream, ComReg believes that where Multicast services are provided that Eircom should ensure that the price is non-discriminatory.

11.472 However, we welcome the views of Industry on whether the price of VUA should increase where Multicast services are provided. We consider that VUA is largely based on the access network, the DSLAM and the aggregation node and all of these costs are not dependent on the traffic carried but instead are based on the number of users. We consider that this is a reason why the cost for VUA might be the same, with or without Multicast. In essence, VUA is priced like copper LLU, i.e. a price per line and per month whatever the usage of the line is. In addition, we are also considering whether the cost of multicast services should be the same as the cost for Multicast services provided with NGA Bitstream. Your views are welcome on these points.

11.473 The table below sets out the proposed cost categories for determining the cost stack for VUA in the context of FTTC and FTTH.

Figure 15: Scope of costs for VUA in context of FTTC and FTTH

VUA FTTC	VUA FTTH
Local loop (copper and fibre) - CAPEX	Local loop (fibre) - CAPEX
Faults and LLU operating costs	Faults and LLU operating costs
DSLAM	OLT (inc. co-location)
Aggregation node (inc. co-location)	Aggregation node (inc. co-location)
Migration	Migration
Cabinet & design	Cabinet & design
Management	Management

11.474 Before we begin to discuss each of the cost categories another important point to consider is the number of FTTC and FTTH customers for VUA, as this is an important parameter for the calculation of the cost per line for VUA.

11.475 The following information was considered in this regard:

- List of MDFs targeted for NGA
- List of cabinets targeted for FTTC
- FTTH deployed around MDFs.

11.476 The model selects cabinets with more than 50 working lines, based on the NGA rollout plan announced by Eircom but this may be further adjusted when Eircom's rollout takes place.

11.477 With the assistance of our advisors, TERA, we have made a number of assumptions in the model in terms of the rate of migration from DSL to NGA. We assumed that a high proportion of Eircom's customers will be migrated over to the NGA network, instantaneously, once the NGA network is in place. This would account for approx. 50% of DSL lines. We also assumed that all DSL lines would be migrated over to the NGA network over the next 7 years. These assumptions have been used in the model to calculate a cost per user on a DCF basis.

11.478 The more significant cost categories, from the table above, are now discussed in turn below. It is important to note that many of the details were provided on a confidential basis and cannot be disclosed publicly.

Local loop - Capital costs - FTTC and FTTH:

11.479 The proposed model for FTTC reuses many of the copper local loop costs to determine the price for VUA. For example:

- Distribution cables
- Final drops
- Trenches for E and D-side.

11.480 However, the E-side cables are replaced by fibre (small cable) and also the demand is split between fibre and copper. In addition, a number of assumptions are made in order to calculate the cost of these cables per line and per month, as follows:

- The share of E-side cable costs from the LLU model
- Typical difference between a 500 pair cable and a 24 fibre pair cable in terms of costs per metre (smaller cable for FTTC can be used) can be up to 90% cheaper for fibre. This is consistent with information obtained by TERA in respect of other jurisdictions.
- Take up of NGA and economic depreciation.

11.481 We welcome the views of Industry on whether they believe that the cost per metre for fibre can be up to 90% cheaper.

11.482 For FTTC take-up, the model takes account of the average of two cases:

- Immediate migration where all lines are migrated as soon as FTTC is available;

- Slow migration, where approximately 50% of DSL lines are migrated in 2012 and a regular increase in order to have all lines migrated over the next 7 years.

11.483 On the other hand for FTTH, the model does not reuse much of the copper local loop costs. The only cost reused in the context of FTTH is trenches and ducts. Similar to FTTC, the model makes a number of assumptions as follows:

- Take up (see proposal above for FTTC)
- Cost differences between copper and fibre.

11.484 For costs of FTTH, the model assumes that the costs of installation and material for fibre are lower than for copper of a similar size, by up to 35% because fibre is cheaper than copper. This is based on evidence from other jurisdictions. We would welcome any evidence OAOs may have from their international experience.

11.485 However, it is worth noting that large scale deployment of FTTH by Eircom is not envisaged and therefore the unit costs can vary significantly when compared to other countries.

11.486 The NGA Margin Squeeze Model also includes an adjustment to the VUA cost stack for the weighting factor that was applied in the context of the LLU pricing decision in 2010 (ComReg Decision D01/10). In ComReg Decision D01/10 ComReg applied a weighting factor in the Copper Access Model whereby the LLU costs were calculated by giving a weighting factor to those exchange sites more likely to be unbundled by OAOs than to the other exchange sites where unbundling was unlikely to be feasible during the price control period (this was referred to as the “Probability Weighting Factor” in ComReg Decision D01/10). The probability weighting factor applied was 95:5 (95% to the cost of lines covered by those exchange likely to be unbundled and 5% to the cost of lines covered by those exchanges that were unlikely to be unbundled). Therefore, the regulated LLU price takes into account the higher costs of those more rural exchanges deemed to be unlikely to be feasible for unbundling during the period of the price control.

11.487 Given that VUA is recognised by Eircom as a replacement for LLU we consider that the 95:5 probability weighting factor should also be applied to VUA for the same reasons that it was applied to LLU. If this was not the case, there would be an inconsistency between the LLU price and the VUA price. Given that Eircom's NGA rollout plans for FTTC (VUA) are likely to replicate the LLU footprint (and beyond) we consider that the probability weighting factor of 95:5 is also relevant in the context of VUA. If this is not the case then we believe that this calls into question the relevance of the 95:5 probability weighting factor for LLU price going forward. If the probability weighting factor is not applied to the VUA costs for the reason that no rural lines are expected to be included as part of the VUA rollout then we consider that the probability weighting factor should be amended in the Copper Access Model for LLU, especially when considering the fact that LLU is not used outside large exchanges. This would have the impact of reducing the LLU price by approximately €0.80.

Faults:

11.488 The current LLU maximum rental price (€12.41), based on ComReg Decision D01/10, exclude the cost of fault repair, where an OAO has to pay a separate fault repair charge once a fault occurs. Therefore, if the fault repair cost were included in the current LLU price, then the charge would increase.

11.489 However, for VUA Eircom proposes to include the cost of faults as part of the rental charge.

11.490 We consider that the line fault index ("LFI") used in the LLU decision should also be applied in the context of NGA. An LFI consistent with the one faced by operators in the context of LLU and used to calculate LLU prices should be used in the context of FTTC, given that these are not new lines. On the other hand a lower LFI should be applied for FTTH, given that these are new lines. It is proposed that LFI data gathered by ComReg as part of the LLU review for new lines should be used in the context of FTTH.

Digital subscriber line access multiplexer ("DSLAM"):

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

11.492 The first point considered in relation to DSLAMs in the proposed model was the choice of appropriate cabinets. The model has taken account of the following parameters:

- The maximum capacity of a DSLAM in terms of the number of lines, as provided by Eircom.

- The size of cabinets and likely cabinets to be unbundled are based on information from the LLU project where exchanges with lines below 2,500 are excluded and the cabinets associated with these exchanges were used for SLU pricing purposes, where the cabinets had at least 300 lines

11.493 This point is not relevant for FTTH as it is deployed directly from the MDF.

11.494 The unit costs for the DSLAMs are based on information provided by Eircom in terms of the relevant equipment, the asset lives of the equipment, a mark-up for operating costs and the price trends. This information has been reviewed by our advisors, TERA, for appropriateness and reasonableness.

11.495 For each site, the model takes account of the number of cabinets depending on the number of lines for that site. In addition, the model assumes that no additional "ESB connection" and "Existing copper cabinet remediation" charges are required for the second and following cabinets.

11.496 Economic depreciation (or DCF approach) was also considered in the model. In order to derive the monthly cost per subscriber of a DSLAM the following information was calculated:

- Sum of discounted costs
- Sum of discounted revenues is calculated assuming a certain price per line and per month
- The price per line and per month is set so as to verify the equation sum of discounted costs = sum of discounted revenues.

11.497 The proposed model assumes a lower number of DSLAMs compared with Eircom but with a higher fill rate. In addition, the model calculates a higher number of FTTH subscribers but a lower number of FTTC subscribers.

Optical Line Terminal ("OLT"):

11.498 OLT is the port or card of the active equipment upon which the fibre terminates in the exchange or MPoP. It can serve single or multiple end users.

11.499 In the model, we have considered a number of dimensioning rules to estimate the equipment required for OLT. This includes the following:

- Line cards: The model assumes that X users are multiplexed per fibre and each card can host up to X fibres. Therefore, each line card can stack up to X subscribers.
- Shelves: The model assumes that each shelf can host up to X line cards and any additional shelf will require X additional redundant racks.

- Network cards: The model assumes that at least X redundant network cards are used and that additional pairs of network cards may be added if the total required bandwidth for the subscribers in the OLT exceeds X Gbps.

11.500 Similar to the unit cost for the DSLAMs, Eircom provided the unit cost information for the OLT. This was also reviewed by TERA. The model includes the gross replacement cost ("GRC") for the line cards, switches and network costs, a proposed 8 year asset life for each asset category and a reasonable mark-up for operating costs.

11.501 Economic depreciation has also been taken into account in the model for OLTs. Please refer to the approach taken above with regard to the economic depreciation for the DSLAMs.

Aggregation node:

11.502 The aggregation node is the transmission equipment at the exchanges which includes the electronic switching system ("ESS") and the optical distribution frame ("ODF").

11.503 Similar to the inputs used for the DSLAMs and OLTs, the model takes account of the GRC of the ODF and ESS-6, the asset lives, the mark-up for operating costs, and for the ESS-6 equipment the model also accounts for price trends as well as the power requirements and floor space requirements.

11.504 The model includes a decision rule for the number of ESS per exchange and ODF per exchange.

11.505 The economic depreciation is calculated in the same way as for the DSLAMs and OLTs.

Migrations:

11.506 For migrations, the proposed model includes the cost of connecting a FTTC premises and a FTTH premises (including the cost of the optical network terminal ("ONT")).

11.507 The model is based on the fact that given the additional civil work required in digging the network infrastructure all the way to the home (or FTTH), the cost is up to five times higher than the cost to the cabinet (or FTTC).

11.508 A tilted annuity is calculated in the model using an assumption for FTTC and FTTH of 20 years. This is based on the fact that Eircom clarified that FTTC is not an interim technology but like FTTH it is expected to be rolled out in the long term and therefore the cost recovery should be based on this expectation.

11.509 It should be noted that the migration costs are currently included as part of the rental charge for VUA, based on Eircom's proposal, however this is subject to the outcome of this consultation in terms of how migration costs should be treated.

ComReg’s preliminary conclusions:

11.510 The relevant cost inputs for VUA are based on the following cost categories:

VUA FTTC	VUA FTTH
Local loop (copper and fibre) - CAPEX	Local loop (fibre) - CAPEX
Faults and LLU operating costs	Faults and LLU operating costs
DSLAM	OLT (inc. co-location)
Aggregation node (inc. co-location)	Aggregation node (inc. co-location)
Migration	Migration
Cabinet & design	Cabinet & design
Management	Management

11.511 The starting point in the cost stack for VUA is the maximum price for SLU (currently at €10.53). Therefore, the price for SLU is the key wholesale input to the overall cost stack for the FTTC NGA services in the NGA Margin Squeeze Model, given that this represents the cost of access from the consumer's premises to the cabinet. The costs for the other NGA services (VUA, NGA Bitstream and End-to-end NG Bitstream) are determined by adding the assumed additional costs for those specific services to the SLU price. Eircom can reduce the price for any of the NGA products along the value chain, so as to comply with the margin squeeze tests so long as it reduces the prices for SLU. This is further discussed below.

11.512 It should be noted that the migration costs (connections) are currently included as part of the rental charge for VUA, based on Eircom's proposal, however this is subject to the outcome of this consultation in terms of how migration costs should be treated.

Q. 48 Do you agree with the approach for determining the cost stack for the VUA product in the WBA market? Please provide reasons for your response.

Q. 49 Do you believe that the 95:5 probability weighting factor should be included for determining the costs of VUA? If the 95:5 probability weighting is not relevant to VUA, do you consider that the Copper Access Model should be amended to exclude the 95:5 for LLU also? Please provide reasons for your response.

Q. 50 Do you believe that the price for VUA should increase where Multicast services are provided and if so should the cost for Multicast services be the same as the cost element included for Multicast in the context of NGA Bitstream? Please provide reasons for your response.

Q. 51 Do you believe that the current LLU charge should be revised to include the cost of fault clearance on the current generation access network so as to ensure consistency with the approach proposed by Eircom for the VUA charge? Please provide reasons for your response.

11.10.5 Outputs from the NGA Margin Squeeze Model

- 11.513 Based on the proposed cost inputs to the NGA Margin Squeeze Model based on the assumptions and parameters set out in subsection 11.10 above, the table below includes the proposed outputs of the NGA Margin Squeeze Model.
- 11.514 As already discussed earlier in this section, we are not setting absolute prices as part of this draft decision and therefore the table below is only the output of the various cost stacks assumed for each service along the value chain. As volumes and costs become more stable and certain, Eircom may present a compliant Margin Test Model with proposed revised wholesale prices which reflect such changes.
- 11.515 Eircom will have the flexibility to set the retail prices. Depending on the retail price set, Eircom would determine the wholesale prices in line with the NGA Margin Squeeze Model. However, as Eircom will be subject to a number of margin squeeze tests, it can set the prices for NGA Bitstream and VUA at prices above these outputs where the retail margin squeeze test allows it. However, Eircom cannot price below these outputs without the appropriate adjustment to the SLU (and where appropriate to the LLU) access price in the NGA Footprint Areas, or without adjusting the underlying assumptions used to arrive at the relevant costs stacks. Any such changes must be supported with robust data/cost models.
- 11.516 The SLU price (€10.53) is the main input to the cost stack for the NGA services in the NGA Margin Squeeze Model, therefore if Eircom reduces the SLU price (of €10.53), the modelled outputs for the NGA products (VUA, NGA Bitstream, End-to-End NG Bitstream) will reduce by the same amount.
- 11.517 The current outputs of the NGA Margin Squeeze Model are set out in the table below. The SLU price is the starting point in the cost stack and the additional assumed costs for each of the other NGA services are added to the SLU price to determine the output costs of that particular service based on the NGA Margin Squeeze Model.

Figure 16: Current proposed outputs in the NGA Margin Squeeze Model based on the SLU price:

Product	€	Implied price floor - €	Notes
SLU price	10.53		Note 1
	↓ plus		
Local Loop E-Side costs	1.09		Note 2 & Note 3
	↓ plus		
VUA costs	8.14		Note 2 & Note 3
VUA Price Floor		19.76	
	↓ plus		
NGA Bitstream costs	3.48		Note 2, Note 3 & Note 4
NGA Bitstream Standalone Price Floor		23.24	
	↓ plus		
End-to-end Next Generation Bitstream costs	0.86		Note 2, Note 3, Note 4
End-to-end NG Bitstream Standalone Price Floor		24.10	

Notes:

Note 1: This is the maximum price in line with ComReg Decision D01/10. The SLU price is the starting point in the cost stack for the NGA services.

Note 2: These are the proposed costs currently based on the cost inputs and assumptions in the NGA Margin Squeeze Model, which may be subject to change depending on consultation responses.

Note 3: These costs are for standalone broadband only. Where NGA Bitstream is sold with WLR an adjustment will be required to ensure there is no double count of access network costs. As per the above table the common access costs relates to the SLU price input plus the E-side network cost.

Note 4: The proposed costs for next generation Bitstream services are based on a projected peak hour rate for broadband of between approximately 140kbps and 230kbps over the period from 2012 to 2015. However, this may be subject to change depending on peak hour demand for broadband in the future, which may have a knock-on impact on costs and prices.

Q. 52 Do you agree with the proposed outputs from the NGA Margin Squeeze Model? Please provide reasons for your response.

11.11 Price control period and future reviews

11.518 This subsection discusses the appropriate length of the price control period as well as the requirement to carry out reviews during the control period. These are discussed in turn under the following headings:

- Appropriate price control period
- Future reviews.

11.11.1 Appropriate price control period

11.519 We consider that at least a three year price control period is a reasonable time period to allow for the transition of services to the new fibre based network.

11.520 While the outcome and length of the transition to NGA is to a certain extent subject to the commercial decision of Eircom, we consider that a price control period of at least three years should allow sufficient time for deployment of Eircom's NGA network as well as allowing operators sufficient time to make informed business decisions regarding migration.

11.521 At the end of the price control period, we can assess and consider the extent of the Eircom rollout as well as the level of take-up by OAOs for the new NGA based services. At this point it will also be necessary to consider whether any changes are required to the methodologies and pricing principles currently set out in this consultation.

11.522 During the proposed price control period, Eircom and OAOs should also have experienced and gathered a significant amount of market and costing information over the next couple of years that may give rise to changes to some of the assumptions in this consultation document. There may also be developments in the retail/wholesale market that may need to be taken into account in the event that the remedies proposed in this paper are either amended or even removed where appropriate.

11.11.2 Future reviews

11.523 We will continue to monitor the progression of Eircom's NGA investment and OAOs migration programme to ensure that the price control period remedies remain consistent with ComReg's regulatory principles and objectives. We will continue to monitor the following:

- Eircom's NGA investment and roll-out to date and the amount of investment committed;

- Any relevant issues in terms of products and process;
- Eircom's and OAOs' migration programme from copper to fibre;
- The appropriateness of the various analytical stages of the margin squeeze test;
- Eircom's compliance with the NGA Margin Squeeze Model.
- Eircom's commercial decision regarding the outcome of the transition;
- Any relevant Market Analyses carried out by ComReg in the next three years.

ComReg's preliminary view:

11.524 A price control period of at least three years will apply for NGA services in the WPNIA and WBA markets.

11.525 ComReg will continue to monitor market developments in the context of NGA in the WPNIA and WBA markets. If and where necessary, a consultation process may be warranted where material changes are required.

Q. 53 Do you agree that the proposed price control period should be for at least three years in the context of NGA services in the WPNIA and WBA markets? Please provide reasons for your response.

Chapter 12

ComReg would appreciate respondents' views on these draft directions.

Q. 54 Do you believe that the draft text of the proposed Decision Instrument 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.

12 Draft Decision Instrument - WPNIA

1. STATUTORY POWERS GIVING RISE TO THIS DECISION INSTRUMENT

1.1 This Decision Instrument is made by the Commission for Communications Regulation (“ComReg”) and relates to the market for wholesale physical network infrastructure access identified by the European Commission in its Recommendation of 17 December 2007 on relevant product and services markets within the electronic communications sector susceptible to *ex ante* regulation¹⁴⁷ (“the Recommendation”) and as defined by ComReg in the Response to Consultation and Decision Document entitled “Wholesale (Physical) Network Infrastructure Access (Market 4)” (Document No.10/39), (Decision No. D05/10).

1.2 This Decision Instrument is made:

- i. Having had regard to sections 10 and 12 of the Communications Regulation Act 2002 (as amended)¹⁴⁸ and Regulation 16 of the Framework Regulations¹⁴⁹ and Regulation 6 of the Access Regulations¹⁵⁰;
- ii. Having had regard to section 13 of the Communications Regulation Act 2002 (as amended) and, where appropriate, complied with policy directions made by the Minister for Communications, Marine and Natural Resources¹⁵¹.

¹⁴⁷ European Commission Recommendation of 17 December 2007 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 344, 28.12.2007, p. 65).

¹⁴⁸ 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).

¹⁴⁹ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), (the Framework Regulations).

¹⁵⁰ European Communities (Electronic Communications) (Access) Regulations 2011 (S.I. No. 334 of 2011) (the Access Regulations).

¹⁵¹ Policy Directions made by the Minister for Communications, Marine and Natural Resources on 21 February, 2003 and 26 March, 2004.

- iii. Having taken the utmost account of the European Commission's Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks¹⁵².
- iv. Having had regard to the market definition, market analysis and reasoning set out in the Response to Consultation and Decision Document entitled "Wholesale (Physical) Network Infrastructure Access (Market 4)" (Document No.10/39), (Decision No. D05/10)¹⁵³.
- v. Having regard to the analysis and reasoning set out in the preliminary consultation entitled "Next Generation Access (NGA) Remedies in Wholesale Regulated Markets - WPNIA and WBA Remedies in an NGA environment" (ComReg Document No. 11/40), submissions received in response to that document following public consultation and having regard to the analysis and reasoning set out in "Next Generation Access ("NGA") Proposed Remedies for Next Generation Access Markets" (ComReg Document No. 12/27) and having regard to the submissions received in response to that document following public consultation and the Final Decision document entitled [XXX, Document No. 12/XX ComReg Decision No. XX/12].
- vi. Having notified the draft measure and the reasoning on which the measure is based to the European Commission, BEREC¹⁵⁴ 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. Pursuant to Regulations 8, 9, 10, 11, 12, 13, 18 and 24 of the Access Regulations.

¹⁵² 2010/572/EU: Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA).

¹⁵³ Market review, Wholesale physical network infrastructure access. Response to ComReg Document 08/41 and Draft Decision, ComReg Document No. 08/104 dated 23 December, 2008 ("ComReg Document No. 08/104") and Market Review: Wholesale (Physical) Network Infrastructure Access (Market 4) Decision No. D 05/10, Document No. 10/39.

¹⁵⁴ Body of European Regulators for Electronic Communications.

The provisions of the Response to Consultation and Final Decision document entitled “Market Review: Wholesale (Physical) Network Infrastructure Access (Market 4)” (ComReg Decision No. D05/10), (ComReg Document No. 10/39), the Preliminary Consultation entitled “*Next Generation Access (NGA) Remedies in Wholesale Regulated Markets - WPNIA and WBA Remedies in an NGA environment*” dated 26 May 2011 (ComReg Document No 11/40) and “*Next Generation Access (“NGA”) Proposed Remedies for Next Generation Access Markets*” (Document No. 12/27)] and Final Decision document entitled [XXX, Document No. 12/XX Decision No. XX/12] shall, where appropriate, be construed with this Decision Instrument.

2. DEFINITIONS

2.1 In this Decision Instrument, unless the context otherwise suggests:

“Access” shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time; for the purposes of this Decision Instrument Access shall include (but shall not be limited to) Access to Associated Facilities and Interconnection where appropriate;

“Access Reference Offer” or “ARO” is the offer of contract by Eircom Limited to OAOs in relation to Current Generation WPNIA and shall include Next Generation WPNIA (currently Version 2.0 but which may from time to time be amended). For the avoidance of doubt the ARO includes the documents which are expressly referred to as being part of the ARO. To the extent that there is any conflict between the ARO and Eircom’s obligations now set out herein, it is the latter which shall prevail;

“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 Seeker” means an OAO that is party to the ARO or, although it has not yet accepted the ARO, has entered into a Non-Disclosure Agreement with Eircom;

“Associated Facilities” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time, but shall also include, for the avoidance of doubt, Backhaul and Migrations;

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011), as may be amended from time to time;

“Backhaul” means the provision of dedicated transmission capacity by Eircom at various bandwidths using an appropriate mechanism (e.g. Ethernet or fibre) between an OAO’s equipment at the Co-location site and the OAO’s nominated Point of

Handover or between an OAO's equipment at the Co-location site and the Eircom exchange;

"Bottom Up Long Run Average Incremental Cost plus" or "BU-LRAIC plus" means the average efficiently incurred directly attributable variable and fixed costs, plus an appropriate apportionment of joint and common costs;

"Cabinet or Street Cabinet" is a node in the access path between the exchange and the End User. It is an enclosure which houses and provides the appropriate environment (i.e. power, air conditioning, space etc) for active or passive equipment including fibre optic equipment;

"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;

"Co-Location" means the provision of sufficient space and other facilities including but not limited to Alternate Current (AC) power, Direct Current (DC) power, air conditioning, access to the MDF and/or to ODF as applicable at the site (exchange, cabinet) to facilitate access to other Current Generation and Next Generation WPNIA services and facilities;

"ComReg" means the Commission for Communications Regulation, established under section 6 of the Communications Regulation Act, 2002 (as amended);

"ComReg Decision No. D01/10" means ComReg Document No 10/10 entitled "Response to Consultations and Final Decision – Local Loop Unbundling ("LLU") and Sub Loop Unbundling ("SLU") Maximum Monthly Rental Charges" dated 9 February 2010;

"ComReg Decision No. 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 No. D05/11" means ComReg Document No. 11/45 entitled "Response to Consultation and Decision on the Introduction of Key Performance Indicators for Regulated Markets" dated 29 June 2011;

"Copper Access Model" means the modelling tool which is applied to determine the cost of provision of local loop unbundling in Ireland. Within the context of the Copper Access Model ComReg has developed the independent efficient operator BU-LRAIC plus cost model of the network to determine Eircom's maximum allowable Local Loop Unbundling and Sub Loop Unbundling monthly rental charges and is more particularly described in ComReg Decision D01/10;

“Current costs” means assets are valued based on their replacement cost rather than their cost when purchased or produced;

“Dark fibre” is optical fibre that is currently installed in the core and access network but is not in use. For the purposes of this Decision Instrument, Dark fibre shall mean unlit fibre in Eircom’s access network;

“Direct Access Wholesale Product” means a wholesale product supplied by Eircom which may be used by an OAO as an input to the OAO’s retail offering. Direct Access Wholesale Product allows the OAO to connect its network equipment, co-located in Eircom’s exchange, to the segment of the access network which connects the OAO customer to the exchange. This allows the OAO to create a retail offering by providing retail services directly from the OAO’s network equipment across the access network segment to the customer. Direct Access Wholesale Products include ULMP and Line Share;

“Duct (access)” means the provision of an underground pipe or conduit used to house (fibre, copper or coaxial) cables of either core or access network, negotiated between Eircom and an OAO on terms which a reasonable SMP provider and reasonable OAO would be reasonably expected to agree bearing in mind in particular Regulation 12 of the Access Regulations. For the purposes of this Decision Instrument, Duct shall mean duct in Eircom’s access network;

“Effective Date” means the date set out in section 15 of this Decision Instrument;

“Eircom” means Eircom Limited and its subsidiaries, and any Undertaking which it owns or controls and any Undertaking which owns or controls Eircom Limited and its successors and assigns;

“End User” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time;

“Equivalence of Inputs” or “EoI” means that the SMP operator shall provide all services and information to all Access Seekers and to itself in the same timescales, and on the same terms and conditions (including price and service levels) by means of the same systems and processes. In particular, it includes the use by the SMP operator of such systems and processes in the same way and with the same degree of reliability and performance when providing services and information to all Access Seekers as well as to itself;

“Equivalence of Outputs” or “EoO” means that the SMP operator shall provide all wholesale access products to Access Seekers in a manner which is comparable or identical to those it provides to itself in terms of functionality and price, albeit potentially using different systems and processes;

“Ethernet” means a technology that supports data transfer between network nodes at Layer 2 of the Open Systems Interconnection (OSI) reference model;

“Exchange” means an Eircom network premises or equivalent facility used to house network and associated equipment. The Exchange usually houses the MPoP;

“Fibre to the Cabinet” or “FTTC” means Fibre to the Cabinet which is a variant of the FTTN access network and architecture where the node used to house active equipment is the street cabinet;

“Fibre to the Home” or “FTTH” means an access network architecture consisting of optical fibre lines in both the feeder and the drop segments i.e. connecting a customer’s premises (the home or in multi-dwelling units the apartment) to the MPoP/Exchange or other similar facility by means of optical fibre;

“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 / MPoP using fibre optic cable. The connection between the cabinet and the End User premises is by way of a copper sub-loop;

“FL LRIC” means forward-looking long run incremental cost;

“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;

“Full Unbundled Access to the Local Loop” shall have the same meaning as in the Schedule to the Access Regulations, as may be amended from time to time;

“Geographic Number Portability” or “GNP” means a facility that allows an End User to retain his/her telephone number when changing or switching service provider and describes the process used for this when the number concerned is a geographic number;

“GLUMP” is the synchronised delivery of ULMP and GNP;

“Historic cost” means actual incurred cost. In the case of assets, it means their original cost, less accumulated depreciation;

“Indirect Access (NGN) Wholesale Products” means a wholesale product supplied by Eircom which may be used by an OAO to use it as an input to the OAO’s retail offering. The wholesale product consists of access network components combined with other network services; in particular, interconnection services, provided by Eircom. The product is described as an indirect access product as it enables OAOs to create a retail offering to provide retail services based on wholesale services provided from Eircom’s equipment on Eircom’s network. Indirect Access (NGN) Wholesale Products include single billing wholesale line rental (SB-WLR);

“Interconnection” shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time;

“Key Performance Indicator(s)” or “KPI(s)” means a measure(s) of the standard(s) of service or facility provided by Eircom to OAO and by Eircom to itself through self-supply;

“Local Loop” shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time;

“Local Loop Unbundling (LLU)” means local loop unbundling which is the final section of Eircom’s access network that provides access into homes and businesses. It runs between the local exchange and a home or premises, usually via a street side cabinet. ULMP and GLUMP are forms of LLU;

“Local Sub-Loop” shall have the same meaning as in the Schedule to the Access Regulations, as may be amended from time to time;

“Margin Squeeze” means a Wholesale Margin Squeeze between VUA and SLU based on an EEO cost base and a LRAIC plus cost standard and as detailed in section 11 of the Decision Instrument for Wholesale Broadband Access which is contained in Section 13 of this document;

“(the) Market” means the market for wholesale physical network infrastructure access (including shared or fully unbundled access) (WPNIA) at a fixed location in Ireland, provided over Current Generation WPNIA and over Next Generation WPNIA and, including the self-supply of Current Generation WPNIA and Next Generation WPNIA by Eircom. The Market is more particularly described in section 4 of the Decision Document entitled Market Review: Wholesale (Physical) Network Infrastructure Access (Market 4) ComReg Decision No. D05/10;

“MDF” means the main distribution frame;

“Metropolitan Point of Presence” or “MPoP” means the point of inter-connection between the access and core networks. It is equivalent to the MDF in the case of the copper access network. All NGA Subscribers’ connections in a given area are centralised to the MPoP on an optical distribution frame (ODF);

“Migrations” means Bulk Migrations; and/or Inter Operator Migrations; and/or Intra Operator Migrations. For the avoidance of doubt, both Intra Operator Migrations and Inter Operator Migrations include but are not limited to migrations:- (i) between Next Generation WPNIA services; (ii) from Current Generation WPNIA to Next Generation WPNIA services; (iii) to Current Generation WPNIA from Next Generation WPNIA services; (iv) from Next or Current Generation WBA, to Next Generation WPNIA; (v) to Next or Current Generation WBA from Next Generation WPNIA; (vi) from SB-WLR to Next Generation WPNIA; and (vii) to SB-WLR from Next Generation WPNIA;

“(Bulk) Migration” means the facility whereby an OAO can have multiple Inter Operator and/or Intra Operator Migrations through a single request from the OAO to Eircom. For the avoidance of doubt, Bulk Migrations include but are not limited to

migrations:- (i) between Next Generation WPNIA services; (ii) from Current Generation WPNIA to Next Generation WPNIA services; (iii) to Current Generation WPNIA from Next Generation WPNIA services; (iv) from Next or Current Generation WBA, to Next Generation WPNIA; (v) to Next or Current Generation WBA from Next Generation WPNIA; (vi) from SB-WLR to Next Generation WPNIA; and (vii) to SB-WLR from Next Generation WPNIA;

“(Intra Operator) Migration” is the facility whereby an OAO can switch the wholesale input(s) it is currently using to support the provision of its retail service to its retail customer. As a result of the switch, the retail customer’s service continues to be provided by the same OAO. The wholesale inputs can be switched to or from any combination of Direct Access Wholesale Products and Indirect Access (NGN) Wholesale Products;

“(Inter Operator) Migration” is the facility whereby the OAO gaining the retail customer can switch the wholesale input(s) currently being used by the losing OAO to support its retail service to the same retail customer. As a result of the switch, the retail customer’s service will now be provided by the gaining OAO. The wholesale inputs can be switched to or from any combination of Direct Access Wholesale Products and Indirect Access (NGN) Wholesale Products;

“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 already existing exclusively copper access networks;

“NGA Footprint Areas” are the geographic areas served by Eircom’s largest Exchanges i.e. those with more than 1,800 connections;

“Non-Disclosure Agreement” means the non-disclosure agreement contained within the ARO;

“Non-NGA Footprint Areas” are the geographic areas other than the areas served by Eircom’s largest Exchanges i.e. those with fewer than 1,800 connections;

“Non-replicable infrastructure” is infrastructure that cannot be commercially replicated once the first-mover operator has established it. If the functionality of such infrastructure is also non-replicable (by alternative technology), this infrastructure can lead to a position of a natural monopoly.

“ODF” means the optical distribution frame;

“OSI” means open systems interconnection;

“OSS” means operational support systems;

“Other Authorised Operator(s)” or “OAO(s)” means an Undertaking that is not Eircom, providing an electronic communications network or an electronic communications service authorised under Regulation 4 of the Authorisation Regulations;

“Performance Metrics” means the aggregate performance levels achieved by Eircom within a specified period, as calculated in accordance with the methodology and service parameter definitions set out in its Service Level Agreements;

“Point of Handover” means the physical point at which two networks are interconnected to allow traffic to pass between these networks;

“Regulated Accounts” mean “Regulated Accounts” as specified in Section 5.1 of the Decision Instrument in ComReg Document No 10/67;

“SB-WLR” means single billing wholesale line rental;

“Service Level Agreements (SLAs)” are legally binding contracts between Eircom and OAOs in relation to the service levels which Eircom commits to from time to time, as more particularly set out in the ARO and appropriate Annexes. To the extent that there is any conflict between the SLAs and Eircom’s obligations now set out herein, it is the latter which shall prevail;

“Shared Access to the local loop” also known as “Line Share” means the product whereby the high frequency capacity of a line is provided to OAOs, as more fully described in the ARO, as may be amended from time to time and refers to the provision to a beneficiary of access to the Local Loop or Local Sub-Loop of the notified operator, authorising the use of the non-voice band frequency spectrum of the twisted metallic pair; the Local Loop continues to be used by the notified operator to provide the telephone service to the public;

“Shared Sub-Loop Unbundling”; means the provision to a beneficiary of access to the local Sub-Loop of the notified operator, authorising the use of the non-voice band frequency spectrum of the twisted metallic pair; the local Sub-Loop continues to be used by the notified operator to provide the telephone service to the public;

“Significant Market Power obligations” or “SMP obligations” are those obligations set out in Regulation 9 to 14 of the Access Regulations, as may be amended from time to time;

“Sub-Loop” is the portion of the access path between the cabinet or street cabinet and the End User’s premises,

“Sub-Loop Unbundling” also known as “SLU” is an implementation of unbundled access to the Sub-Loop. It excludes the portion of the local loop between the exchange and street side cabinet. SLU is contained in the market for Wholesale

(Physical) Network Infrastructure Access (Market 4) as set out in ComReg Decision No. D05/10;

“Subscriber(s)” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time;

“Unbundled access to the fibre loop” means unbundled access to the optical fibre lines in both the feeder and drop segments of the access network;

“Unbundled Local Metallic Path” or “ULMP” is the implementation of Full Unbundled Access to the Local Loop;

“Undertaking(s)” shall have the same meaning as under the Framework Regulations as may be amended from time to time;

“VDSL” means very-high-bit-rate digital subscriber line;

“Virtual Unbundled Access” or “VUA” means the wholesale active access product proposed by Eircom. It is an enhanced Layer 2 product which allows the handover or interconnection of aggregate End Users’ connections at the local exchange. It allows a level of control to the Access Seeker similar to that afforded by a fully unbundled local loop;

“WBA” means wholesale broadband access comprising non-physical or active network access including “Bitstream” access at a fixed location. It includes Current Generation WBA and Next Generation WBA and is synonymous with the Market;

“(Current Generation) WBA” means WBA provided over current generation access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets) that is copper based;

“(Next Generation) WBA” means WBA provided over next generation access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets), that is either exclusively fibre or a combination of fibre and copper;

“(Eircom’s) website” means for the purpose of this Decision Instrument, Eircom’s publicly available wholesale website;

“WPNIA” means wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location. It includes Current Generation WPNIA and Next Generation WPNIA and is synonymous with the Market as set out in ComReg Decision No. D05/10;

“(Current Generation) WPNIA” means WPNIA provided over current generation copper access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets) and includes

but is not limited to those facilities and services and variants of those, which are specified in the current Version 2.0 of Eircom's Access Reference Offer (ARO);

"(Next Generation) WPNIA or NG WPNIA" means WPNIA provided over next generation fibre access network infrastructure and its associated facilities (including self-supply by Eircom for the purpose of serving its downstream markets). It includes where the fibre access network infrastructure and copper access network infrastructure are combined within the Local Loop.

3. SCOPE AND APPLICATION

- 3.1 This Decision Instrument applies to Eircom in respect of activities falling within the scope of the Market.
- 3.2 This Decision Instrument is binding upon Eircom and Eircom shall comply with it in all respects.
- 3.3 This Decision Instrument relates to:
 - a) a further specification of the SMP obligations for Next Generation WPNIA which were set out in Part III of the Decision Instrument annexed to ComReg Decision No. D05/10.
 - b) an amendment of section 7.2 (iv) and section 7.2 (v) and associated provisions of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which obliges Eircom to provide access to:- (i) full sub-loop unbundling, combined with GNP where required; and (ii) shared sub-loop unbundling.
 - c) an amendment of section 7.2 (viii) and associated provisions of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which obliges Eircom to provide access to Ducts.
 - d) an amendment of section 12 of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which imposes obligations relating to price control and cost accounting, with regard to Current Generation Migrations.
 - e) a further specification of:- (i) the SMP obligations set out in section 12.3 and 12.4 of the Decision Instrument annexed to ComReg Decision No. D05/10 which imposed a cost orientation price control obligation on Eircom; (ii) ComReg Decision No. D01/10; and (iii) section 12.4 of the Decision Instrument annexed to ComReg Decision No. D05/10 which imposed an obligation on Eircom not to cause a margin/price squeeze.

PART II - SMP OBLIGATIONS IN RELATION TO CURRENT GENERATION WPNIA (SECTION 4 OF THE DECISION INSTRUMENT)

4. SMP OBLIGATIONS IN RELATION TO CURRENT GENERATION WPNIA

A. Amendment of sections 7.2 (iv) and 7.2 (v) of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10

Proposed Wording for Option A

- 4.1 The aspects of Eircom's access obligation contained in sections 7.2 (iv) and 7.2 (v) of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which obliges Eircom to provide Access to:- (i) full sub-loop unbundling combined with GNP where required; and (ii) shared loop unbundling are amended by section 4.2 of this Decision Instrument.
- 4.2 In NGA Footprint Areas the obligation to provide Access to SLU, in accordance with section 7 is amended whereby (i) full sub-loop unbundling, combined with GNP where required; and (ii) shared sub-loop unbundling will only be available by way of a reasonable request from the Access Seeker.
- 4.3 For the avoidance of doubt, in Non-NGA Footprint Areas the obligation to Access to SLU, in accordance with sections 7.2 (iv) and 7.2 (v) of the Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 remain and are unaffected by this Decision Instrument.

Proposed Wording for Option B

- 4.1 The aspects of Eircom's access obligation contained in sections 7.2 (iv) and 7.2 (v) of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which oblige Eircom to provide Access to:- (i) full sub-loop unbundling combined with GNP where required; and (ii) shared loop unbundling are amended.
- 4.2 In NGA Footprint Areas the obligation to provide Access to (i) full sub-loop unbundling, combined with GNP where required; and (ii) shared sub-loop unbundling in accordance with section 7 is withdrawn, whereby SLU is not mandated in those areas.

- 4.3 For the avoidance of doubt, in Non-NGA Footprint Areas the obligation to Access to SLU, in accordance with sections 7.2 (iv) and 7.2 (v) of the Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 remain and are unaffected by this Decision Instrument.
- 4.4 Eircom's access obligation contained in section 7.2 (viii) of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which obliges Eircom to provide Access to Ducts and any associated obligations is hereby amended. The provisions which relate to Civil Engineering Infrastructure which are set out in section 6 of this Decision Instrument shall equally apply to Current Generation WPNIA. The remaining provisions of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 remain unaffected unless otherwise stated.
- 4.5 Eircom's access obligation contained in section 12 of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 is hereby amended such that, with regard to charges associated with Current Generation Migrations Eircom shall set a single charge based on the likely costs of migrations for both Current Generation and Next Generation WPNIA and Current Generation and Next Generation WBA services and facilities spread across all the likely volumes over the same period, including all of the retail and wholesale access paths related to the likely NGA Footprint Areas.
- 4.6 Eircom is directed to charge no more than the lower of the following price for SLU monthly rental in the NGA Footprint Areas:
- (i) The maximum charge, as set out in ComReg Decision No. D01/10 or as amended based on changes by Eircom to the main parameter(s) of the Copper Access Model as set out in ComReg Decision D01/10. This would be subject to review by ComReg;

or

 - (ii) The Revised Charge derived by the application of the margin squeeze test between the VUA monthly charge and the SLU monthly charge based on the NGA Margin Squeeze Model (and is more particularly described in Section 11.12 of the draft Decision Instrument – Wholesale Broadband Access in Chapter 13 of this document).
- 4.7 Eircom shall ensure that any reduction to the SLU monthly rental charge as a result of section 4.6 is consistently applied to the LLU monthly rental charge, where appropriate, using the Copper Access Model in the NGA Footprint Areas.

- 4.8 Without prejudice to the generality of section 10.1 of ComReg Decision No. D05/10 and as set out in section 10.3 of ComReg Decision No. D05/10, proposed changes to wholesale prices and the application of such prices shall not be implemented without prior notification to ComReg and without prior notification to OAOs.

PART III - SMP OBLIGATIONS IN RELATION TO NEXT GENERATION WPNIA (SECTIONS 5 TO 11 OF THE DECISION INSTRUMENT)

5. SMP OBLIGATIONS IN RELATION TO NEXT GENERATION WPNIA

- 5.1 ComReg is further specifying certain SMP obligations on Eircom in respect of Next Generation WPNIA in the Market in accordance with and pursuant to Regulations 8, 9, 10, 11, 12, 13 and 18 of the Access Regulations, as detailed further in sections 6 to 11 below.

6. OBLIGATIONS TO PROVIDE ACCESS

- 6.1 Pursuant to Regulation 12(1) of the Access Regulations, Eircom shall meet all reasonable requests from OAOs for the provision of Access, including Associated Facilities.
- 6.2 Without prejudice to the generality of section 6.1 and notwithstanding the provisions of sections 6.3 and 6.4, pursuant to Regulation 12(2) of the Access Regulations, Eircom shall provide and grant Access to OAOs to the following particular services and facilities:
- (i) Unbundled access to the fibre loop;
 - (ii) Unbundled access to the fibre loop combined with GNP where required;
 - (iii) Co-location, including cabinet Co-location;
 - (iv) Backhaul from the Cabinet to the Exchange, and from the Exchange to the nominated Point of Handover;
 - (v) Migrations;

- (vi) Civil Engineering Infrastructure including Duct Access; and
 - (vii) Where Civil Engineering Infrastructure is not available, Dark Fibre where reasonably available.
- 6.3 Eircom shall offer Access to the services and facilities described in this section 6 in accordance with the requirements of this Decision Instrument and any product descriptions and on the terms and conditions which are specified in the current version of the ARO, or elsewhere on Eircom's website as may be amended from time to time. For the avoidance of doubt, however, to the extent that there is any conflict between the ARO and related manuals and Eircom's obligations now set out herein, it is the latter which shall prevail.
- 6.4 Without prejudice to the generality of sections 6.1, 6.2 and 6.3 Eircom shall:
- (i) Pursuant to Regulation 12 (2) (b) of the Access Regulations, negotiate in good faith with OAOs requesting Access;
 - (ii) Pursuant to Regulation 12 (2) (c) of the Access Regulations, not withdraw Access to services and facilities already granted without the prior approval of ComReg and in accordance with terms and conditions determined by ComReg;
 - (iii) Pursuant to Regulation 12 (2) (e) of the Access Regulations, grant open Access to technical interfaces, protocols and other key technologies that are indispensable for the interoperability of services or virtual network services; and
 - (iv) Pursuant to Regulation 12 (2) (h) of the Access Regulations, provide Access to OSS or similar software systems necessary to ensure fair competition in the provision of services.
- 6.5 Without prejudice to the generality of section 6.4 (i) Eircom shall negotiate in good faith with Access Seekers in relation to the conclusion of an agreement regarding the terms and conditions, including pricing, for Civil Engineering Infrastructure and Dark Fibre (subject to section 6.2 (vii)). Negotiations shall be concluded, unless exceptional circumstances arise, within three months, from the date the Access Seeker makes an access request to Eircom for Access to Civil Engineering Infrastructure and/or Dark Fibre. For the avoidance of doubt the three month period shall encompass any request for information associated with such an access request and negotiations for both Civil Engineering Infrastructure and where appropriate, Dark Fibre.

7. CONDITIONS ATTACHED TO THE ACCESS OBLIGATIONS

- 7.1 Eircom shall, in relation to the obligations set out under section 6 grant Access to Next Generation WPNIA and Associated facilities, pursuant to Regulation 12(3) of the Access Regulations, in a fair, reasonable and timely manner.
- 7.2 Without prejudice to the generality of section 7.1, Eircom shall:
- (i) Conclude, maintain and keep updated, as appropriate, legally binding SLAs which include provision for associated Performance Metrics with OAOs;
 - (ii) Negotiate in good faith with OAOs in relation to the conclusion of legally binding and fit-for-purpose SLAs;
 - (iii) Ensure that all SLAs include provision for service credits arising from a breach of an SLA. Agreed service credits shall be a matter for negotiation between Eircom and Access Seekers and recovery of service credits shall be in the first instance, a matter for the individual Access Seeker and Eircom;
 - (iv) SLAs should detail how service credits are calculated, to include the provision of an example calculation;
 - (v) Payment of service credits, where they occur, shall be made in a timely and efficient manner.
- 7.3 Where a request by an OAO for provision of Access, or a request by an OAO for provision of information is refused or met only in part, Eircom shall, provide the objective criteria for refusing same to the OAO which made the request.

8. OBLIGATION OF NON-DISCRIMINATION

- 8.1 Eircom shall have an obligation of non-discrimination as provided for by Regulation 10 of the Access Regulations in respect of Access.
- 8.2 Without prejudice to the generality of section 8.1, Eircom shall:

- (i) Apply equivalent conditions in equivalent circumstances to other Undertakings providing equivalent services; and
 - (ii) Ensure that all services and information are provided to other Undertakings under the same conditions and of the same quality as the services and information that Eircom provides to its own services or those of its subsidiaries or partners.
- 8.3 Without prejudice to the generality of section 8.1 and section 8.2, where Eircom provides Next Generation WPNIA, it will do so on an Equivalence of Inputs basis.
- 8.4 Where Eircom can demonstrate to the satisfaction of ComReg that reasonable steps were taken to comply with section 8.3 and that it would be unduly burdensome to provide Next Generation WPNIA on an Equivalence of Inputs basis, or that it was not possible to comply with section 8.3, Eircom shall provide Next Generation WPNIA on an Equivalence of Outputs basis. The provision of services and facilities on an Equivalence of Inputs basis shall allow for very minor or insignificant differences, however any such differences shall be brought to ComReg's attention.
- 8.5 In accordance with the non-discrimination obligations contained in sections 8.3 and 8.4, Eircom shall demonstrate in writing to the satisfaction of ComReg that Next Generation WPNIA services and facilities have been provided on an Equivalence of Inputs basis or where appropriate an Equivalence of Outputs basis. For the purpose of this section, Eircom shall provide sufficient information to ComReg seven months prior to any offer of a new Next Generation WPNIA service or facility coming into effect and three months in advance of any change to an existing Next Generation WPNIA service or facility coming into effect.
- 8.6 With regard to Next Generation WPNIA services and facilities which have been offered prior to the Effective Date of this Decision Instrument, Eircom shall demonstrate in writing to the satisfaction of ComReg, within six months of the Effective Date of this Decision Instrument, and in accordance with the non-discrimination obligations contained in sections 8.3 and 8.4, that such Next Generation WPNIA services and facilities have been provided on an Equivalent of Inputs basis or where appropriate, an Equivalence of Output basis.
- 8.7 It shall be a condition of Eircom's non discrimination obligations that Eircom publish Key Performance Indicators (KPIs) on its website. The specification of the content of the KPIs shall be in accordance with ComReg Decision No. 05/11.

- 8.8 Eircom shall notify ComReg, at the date of agreement, of any potential co-investment arrangements that may take place between Eircom and another party.
- 8.9 For the avoidance of any doubt, the obligations set out in this section 8 shall apply irrespective of whether or not a specific request for services or information has been made by an OAO to Eircom.

9. OBLIGATION OF TRANSPARENCY

- 9.1 Eircom shall have an obligation of transparency as provided for by Regulation 9 of the Access Regulations in relation to Access.
- 9.2 Without prejudice to the generality of the obligation in section 9.1, pursuant to Regulation 9(2) of the Access Regulations, Eircom shall make publicly available and keep updated on its website, the ARO which shall include Next Generation WPNIA as specified in section 6. The ARO and all associated invoices shall be sufficiently unbundled so as to ensure that OAOs availing of such services and facilities are not required to pay for services or facilities which are not necessary for the service or facility requested, and the ARO shall include:
- i. A description of the relevant offerings broken down into components according to market needs;
 - ii. A description of the associated terms and conditions for supply and use, including prices;
 - iii. A description of the technical specifications and network characteristics of the Access being offered; and
 - iv. At least the elements set out in the Schedule to the Access Regulations.
- 9.3 Eircom shall, unless otherwise agreed by ComReg, make publicly available and publish on Eircom's website at least six months in advance of coming into effect, any proposed changes to the ARO, pertaining to non-price information in respect of product specification, services, facilities and or processes resulting from the offer of new Next Generation WPNIA services. Eircom shall notify ComReg at least one month in advance of any such publication taking place, that is, seven months prior to any changes coming into effect. This period of one month may be varied with the agreement of ComReg or at ComReg's discretion. Eircom shall not implement such proposed offers or notify such proposed offers to OAOs without prior notification to ComReg of the information specified in this section.

- 9.4 Eircom shall, unless otherwise agreed by ComReg, make publicly available and publish on Eircom's website at least two months in advance of coming into effect, any proposed changes to the ARO, including any changes in respect of existing product specification, services, facilities and processes, or prices and price changes resulting from the offer of new Next Generation WPNIA services.
- 9.5 Within six months of the Effective Date of this Decision Instrument Eircom shall publish information on its website in respect of Next Generation WPNIA services and facilities which shall be sufficient to identify and justify any differences between the services, facilities and processes as set out in the ARO and the comparable services, facilities and processes which Eircom provides to itself. Eircom shall keep this information updated as new services or facilities are developed or deployed, or existing service or facilities are amended.
- 9.6 Pursuant to Regulation 9 (3) of the Access Regulations, ComReg may issue directions requiring Eircom to make changes to the ARO to give effect to obligations imposed in this Decision Instrument and, pursuant to Regulation 9(3) of the Access Regulations to publish the ARO with such changes. ComReg may issue directions to Eircom from time to time requiring it to publish information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use and prices, pursuant to Regulation 18 of the Access Regulations.
- 9.7 Without prejudice to the generality of the obligation in section 9.1 Eircom shall make public information on its website, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, and prices, in respect of the services and facilities referred to in section 6, as specified by ComReg from time to time and all other information which may be reasonably required by OAOs.
- 9.8 Eircom shall continue to publish the information and prices specified in the current Version 2.0 of the ARO as may be amended from time to time and the related published industry documentation as may be amended from time to time and as currently published on its website.
- 9.9 It shall be a condition of Eircom's transparency obligations that Eircom publish Key Performance Indicators (KPIs) on its website. The specification of the content of the KPIs shall be in accordance with ComReg Decision No. 05/11.
- 9.10 Eircom shall publish all SLAs (and any updates thereto) on its website.
- 9.11 Eircom shall be obliged to publish on its website information about Performance Metrics.

- 9.12 Eircom shall make publicly available, on a quarterly basis or such other suitably regular basis as may be specified by ComReg, sufficient information regarding the introduction of new infrastructures, technologies, services or facilities which could reasonably be expected to support services or facilities in respect of Next Generation WPNIA. Without prejudice to the foregoing, where such information to be provided is of a commercially sensitive nature, Eircom is obliged to publish details, on a case by case basis, identifying the category and a description of such information which will be made available to OAOs upon the signing of a Non-Disclosure Agreement (“NDA”). The NDA shall also be published by Eircom.

10. OBLIGATION OF ACCOUNTING SEPARATION

- 10.1 Pursuant to Regulation 11 of the Access Regulations, Eircom shall have an obligation to maintain separated accounts. All of the obligations in relation to accounting separation, set out in Annex 1 and 2 of ComReg Decision No. D08/10 applying to Eircom and in force immediately prior to the Effective Date of this Decision Instrument related to the Market, shall be maintained in their entirety.

11. OBLIGATIONS RELATING TO PRICE CONTROL AND COST ACCOUNTING

- 11.1 Pursuant to Regulation 13 (1) of the Access Regulations, Eircom shall continue to comply with all of the obligations in relation to cost accounting in force immediately prior to the Effective Date of this Decision Instrument.
- 11.2 Pursuant to Regulation 13 (1) of the Access Regulations, Eircom shall maintain appropriate cost accounting systems in respect of products, services or facilities referred to in section 6.
- 11.3 Pursuant to Regulation 13 (1) of the Access Regulations, prices charged by Eircom to any other Undertaking for Access to or use of those products, services or facilities referred to in section 6 shall be subject to a cost orientation obligation.
- 11.4 With regard to Civil Engineering Infrastructure and in particular Duct and pole access, Eircom shall base such charges on historic costs, including an appropriate rate of return plus any actual incremental costs associated with remediation and on-going maintenance.
- 11.5 With regard to Dark Fibre, Eircom shall base such charges on the current costs for fibre plus historic costs for civil engineering access.

- 11.6 With regard to fibre loop unbundling in the context of FTTH, Eircom shall ensure that the charges are no more than the maximum charges based on the Copper Access Model, including an appropriate rate of return, while adjusting the model for the cost of fibre optic cables.
- 11.7 With regard to SLU backhaul, Eircom shall ensure that the costs are calculated in a manner which is consistent with the methodology used in the Copper Access Model as amended from time to time.
- 11.8 Notwithstanding section 11.3, Eircom shall ensure that the charges for any fault repair associated with Next Generation WPNIA services and facilities are cost oriented.
- 11.9 With regard to charges associated with Next Generation Migrations, Eircom shall set a single charge, based on the likely costs of migrations (including connections) for both Current Generation and Next Generation products in the WPNIA Market and Current Generation and Next Generation WBA spread across all of the likely volumes over the same period, including all of retail and wholesale access paths related to the likely NGA Footprint Areas.
- 11.10 Notwithstanding section 11.9, on an annual basis, Eircom shall ensure that there is no over or under recovery of migration costs when assessed against its Regulated Accounts. Where there is an over recovery of costs, Eircom shall refund the relevant OAOs. Where there is an under recovery of costs, Eircom shall adjust the migration charge accordingly going forward.
- 11.11 Eircom shall have an obligation not to cause a margin/price squeeze.

PART IV - OBLIGATIONS AND EFFECTIVE DATE (SECTIONS 12 TO 15 OF THE DECISION INSTRUMENT)

12. STATUTORY POWERS NOT AFFECTED

- 12.1 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 from time to time.

13. MAINTENANCE OF OBLIGATIONS

- 13.1 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, are continued in force by this Decision Instrument and Eircom shall comply with same.
- 13.2 If any section, clause or provision or portion thereof contained in this Decision Instrument is 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 section, clause or provision or portion 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 thereof of this Decision Instrument, and shall not in any way affect the validity or enforcement of this Decision Instrument.

14. WITHDRAWAL OF OBLIGATIONS

- 14.1 Part III of the Decision Instrument annexed to ComReg Decision No. D05/10 is hereby withdrawn and replaced with the obligations in this Decision Instrument.

15. EFFECTIVE DATE

- 15.1 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.

ALEX CHISHOLM

CHAIRPERSON

THE COMMISSION FOR COMMUNICATIONS REGULATION

THE DAY OF 2012

Chapter 13

ComReg would appreciate respondents' views on these draft directions.

Q. 55 Do you believe that the draft text of the proposed Decision Instrument 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.

13 Draft Decision Instrument - WBA

1. STATUTORY POWERS GIVING RISE TO THIS DECISION INSTRUMENT

- 1.1 This Decision Instrument is made by the Commission for Communications Regulation (“ComReg”) and relates to the market for wholesale broadband access identified by the European Commission in its Recommendation of 17 December 2007 on relevant product and services markets within the electronic communications sector susceptible to *ex ante* regulation¹⁵⁵ (“the Recommendation”) and as defined by ComReg in the Response to Consultation and Decision Document entitled “Market Review: Wholesale Broadband Access (Market 5)”, (ComReg Decision No. D06/11), (ComReg Document No.11/49).
- 1.2 This Decision Instrument is made:
 - i. Having had regard to sections 10 and 12 of the Communications Regulations Act 2002 (as amended)¹⁵⁶ and Regulation 16 of the Framework Regulations¹⁵⁷ and Regulation 6 of the Access Regulations¹⁵⁸;

¹⁵⁵ European Commission Recommendation of 17 December 2007 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 344, 28.12.2007, p. 65).

¹⁵⁶ 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).

¹⁵⁷ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), (the Framework Regulations).

¹⁵⁸ European Communities (Electronic Communications) (Access) Regulations 2011 (S.I. No. 334 of 2011) (the Access Regulations).

- ii. Having had regard to section 13 of the Communications Regulation Act 2002 (as amended) and, where appropriate, complied with policy directions made by the Minister for Communications, Marine and Natural Resources¹⁵⁹.
- iii. Having taken the utmost account of the European Commission's Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks¹⁶⁰.
- iv. Having had regard to the market definition, market analysis and reasoning set out in the Response to Consultation and Decision Document entitled "Market Review: Wholesale Broadband Access (Market 5)", (ComReg Decision No. D06/11), (ComReg Document No. 11/49).
- v. Having regard to the analysis and reasoning set out in the preliminary consultation entitled "Next Generation Access (NGA) Remedies in Wholesale Regulated Markets - WPNIA and WBA Remedies in an NGA environment" (ComReg Document No. 11/40), submissions received in response to that document following public consultation and having regard to the analysis and reasoning set out in "Next Generation Access ("NGA") Proposed Remedies for Next Generation Access Markets" (ComReg Document No. 12/27) and having regard to the submissions received in response to that document following public consultation and the Final Decision document entitled [XXX, Document No. 12/XX ComReg Decision No. XX/12]. Having notified the draft measure and the reasoning on which the measure is based to the European Commission, BEREC¹⁶¹ 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.
- vi. Pursuant to Regulations 8, 9, 10, 11, 12, 13, 18 and 24 of the Access Regulations.

¹⁵⁹ Policy Directions made by the Minister for Communications, Marine and Natural Resources on 21 February, 2003 and 26 March, 2004.

¹⁶⁰ 2010/572/EU: Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA).

¹⁶¹ Body of European Regulators for Electronic Communications.

- 1.3 The provisions of the Response to Consultation and Final Decision document entitled “Market Review: Wholesale Broadband Access (Market 5)” (ComReg Document No. 11/49), (ComReg Decision No. D06/11), the Preliminary Consultation entitled “*Next Generation Access (NGA) Remedies in Wholesale Regulated Markets - WPNIA and WBA Remedies in an NGA environment*” dated 26 May 2011 (ComReg Document No 11/40) and “*Next Generation Access (“NGA”) Proposed Remedies for Next Generation Access Markets*” (Document No. 12/27) and Final Decision document entitled [XXX, Document No. 12/XX Decision No. XX/12] shall, where appropriate, be construed with this Decision Instrument.

2. Definitions

- 2.1 In this Decision Instrument, unless the context otherwise suggests:

“Access” shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time; for the purposes of this Decision Instrument Access shall include (but shall not be limited to) Access to Associated Facilities and Interconnection where appropriate;

“Access Reference Offer” or “ARO” is the offer of contract by Eircom Limited to OAOs in relation to Current Generation WPNIA and shall include Next Generation WPNIA (currently Version 2.0 but which may from time to time be amended). For the avoidance of doubt the ARO includes the documents which are expressly referred to as being part of the ARO. To the extent that there is any conflict between the ARO and Eircom’s obligations now set out herein, it is the latter which shall prevail;

“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 Seeker” means an OAO that is party to the Wholesale Broadband Access Reference Offer, or, although it has not yet accepted the Wholesale Broadband Access Reference Offer, has entered into a Non-Disclosure Agreement with Eircom;

“Associated Facilities” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time, but shall also include, for the avoidance of doubt, Backhaul and Migrations;

“Authorisation Regulations” means the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011), as may be amended from time to time;

“Average total costs” or “ATC” is a form of cost standard and means the variable, fixed, joint and common costs of a particular Undertaking based on historical cost data but with no adjustments for efficiencies;

“Backhaul” means the provision of dedicated transmission capacity at various bandwidths between the Eircom WBA network and the OAO’s nominated Point of Handover. For example, this includes, but is not limited to, the Eircom WEIL (Wholesale Ethernet Interconnect Link) Service which incorporates the options of In-building handover, In-span handover and Customer-sited handover points;

“Bitstream” means a wholesale product provided in the Market;

“Co-location” means the provision of sufficient space and other facilities including but not limited to Alternate Current (AC) power, Direct Current (DC) power, air conditioning, access to the MDF and/or to the ODF as applicable, at an exchange to facilitate access to VUA;

“ComReg” means the Commission for Communications Regulation, established under section 6 of the Communications Regulation Act, 2002 (as amended);

“ComReg Decision No. D01/06” means ComReg Document 06/01 entitled “Retail minus wholesale price control for Wholesale Broadband Access Market” dated 13 January 2006;

“ComReg Decision No. 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 Document No. 10/108” means the consultation entitled “Wholesale Broadband Access: Further Consultation to Consultation Document No 10/56 and draft decision in relation to price control and transparency” dated 22 December 2010;

“ComReg Decision No. D05/11” means ComReg Document No. 11/45 entitled “Response to Consultation and Decision on the Introduction of Key Performance Indicators for Regulated Markets” dated 29 June 2011;

“ComReg Decision No. D06/11” means Document No 11/49 entitled “Response to Consultation and Decision; Market Review: Wholesale Broadband Access” dated 8 July 2011;

“Customer-sited handover” means the connection from the Eircom network and the OAO’s equipment, within the OAO premises;

“Direct Access Wholesale Product” means a wholesale product supplied by Eircom which may be used by an OAO as an input to the OAO’s retail offering. Direct Access Wholesale Product allows the OAO to connect its network equipment, co-

located in Eircom's exchange, to the segment of the access network which connects the OAO customer to the exchange. This allows the OAO to create a retail offering by providing retail services directly from the OAO's network equipment across the access network segment to the customer. Direct Access Wholesale Products include ULMP and Line Share;

"Effective Date" means the date set out in Section 15 of this Decision Instrument;

"Eircom" means Eircom Limited and its subsidiaries, and any Undertaking which it owns or controls, and any Undertaking which owns or controls Eircom Limited and its successors and assigns;

"End User" shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time;

"End-to-end Next Generation Bitstream" means the end-to-end resale, Next Generation Bitstream product which allows the Access Seeker to purchase Next Generation WBA without the need to have its own infrastructure for example Backhaul and ISP services;

"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;

"Equivalence of Inputs" or "EoI" means that the SMP operator shall provide all services and information to all Access Seekers and to itself in the same timescales, and on the same terms and conditions (including price and service levels) by means of the same systems and processes. In particular, it includes the use by the SMP operator of such systems and processes in the same way and with the same degree of reliability and performance when providing services and information to all Access Seekers as well as to itself;

"Equivalence of Outputs" or "EoO" means that the SMP operator shall provide all wholesale access products to Access Seekers in a manner which is comparable or identical to those it provides to itself in terms of functionality and price, albeit potentially using different systems and processes;

"Ethernet" means a technology that supports data transfer between network nodes at Layer 2 of the Open Systems Interconnection (OSI) reference model;

"Exchange" means an Eircom network premises or equivalent facility used to house network and associated equipment. The Exchange usually houses the MPoP;

"Fibre to the Cabinet" or "FTTC" means Fibre to the Cabinet which is a variant of the FTTN access network and architecture where the node used to house active equipment is the street cabinet;

"Fibre to the Home" or "FTTH" means an access network architecture consisting of optical fibre lines in both the feeder and the drop segments i.e. connecting a

customer's premises (the home or in multi-dwelling units the apartment) to the MPoP/Exchange or other similar facility by means of optical fibre;

"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 / MPoP using fibre optic cable. The connection between the cabinet and the End User premises is by way of a copper sub-loop;

"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;

"In-building handover" means the connection from the Eircom network to the OAO's equipment within the Eircom Exchange, or equivalent facility;

"Indirect Access (NGN) Wholesale Products" means a wholesale product supplied by Eircom which may be used by an OAO to use it as an input to the OAO's retail offering. The wholesale product consists of access network components combined with other network services; in particular, interconnection services, provided by Eircom. The product is described as an indirect access product as it enables OAOs to create a retail offering to provide retail services based on wholesale services provided from Eircom's equipment on Eircom's network. Indirect Access (NGN) Wholesale Products include single billing wholesale line rental (SB-WLR);

"In-span handover" means the connection between the Eircom Exchange and the OAO's nominated Point of Handover;

"Interconnection" shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time;

"IP" means internet protocol;

"ISP Services" means the services provided by an internet service provider and in the context of end-to-end Next Generation Bitstream means the provision of internet access and can also include additional services such as the provision of internet addresses and electronic file storage facilities;

"Key Performance Indicator(s)" or "KPI(s)" means a measure(s) of the standard(s) of service or facility provided by Eircom to OAO and by Eircom to itself through self-supply;

"Local Loop" shall have the same meaning as under Regulation 2 of the Access Regulations, as may be amended from time to time;

"Long Run Average Incremental Costs plus" or "LRAIC plus" is a form of cost standard and means the average efficiently incurred directly attributable variable and fixed costs, plus an appropriate apportionment of joint and common costs;

“Margin Squeeze Tests” means the tests used by ComReg to identify a potential (i) Retail Margin Squeeze; (ii) Wholesale Margin Squeeze between End-to-end Next Generation Bitstream and Next Generation Bitstream products; (iii) Wholesale Margin Squeeze between Next Generation Bitstream and VUA products; and (iv) Wholesale Margin Squeeze between VUA and SLU products;

“(the) Market” means the market for wholesale broadband access. The Market is more particularly described in section 4 of the ComReg Decision Document entitled “Market Review: Wholesale Broadband Access (Market 5)” ComReg Decision No. D06/11;

Material (amendment)” means, in the context of Section 11 of this Decision Instrument, a significant amendment, such that a new or existing retail product represents or is likely to represent the lower of either (i) 20% of Eircom’s Next Generation retail customer base, in terms of Subscriber numbers; or (ii) 20,000 new retail subscribers for Eircom’s Next Generation retail services;

“MDF” means the main distribution frame;

“Metropolitan Point of Presence” or “MPoP” means the point of inter-connection between the access and core networks. It is equivalent to the MDF in the case of the copper access network. All NGA Subscribers’ connections in a given area are centralised to the MPoP on an optical distribution frame (ODF);

“Migrations” means Bulk Migrations; and/or Inter Operator Migrations; and/or Intra Operator Migrations. For the avoidance of doubt, both Intra Operator Migrations and Inter Operator Migrations include but are not limited to migrations:- (i) between Next Generation WBA services; (ii) from Current Generation WBA to Next Generation WBA services; (iii) to Current Generation WBA from Next Generation WBA services; (iv) from Next or Current Generation WPNIA, to Next Generation WBA; (v) to Next or Current Generation WPNIA from Next Generation WBA; (vi) from SB-WLR to Next Generation WBA; and (vii) to SB-WLR from Next Generation WBA;

“(Bulk) Migration” means the facility whereby an OAO can have multiple Inter Operator and/or Intra Operator Migrations through a single request. For the avoidance of doubt, Bulk Migrations include, but are not limited to migrations:- (i) between Next Generation WBA services; (ii) from Current Generation WBA to Next Generation WBA services; (iii) to Current Generation WBA from Next Generation WBA services; (iv) from Next or Current Generation WPNIA, to Next Generation WBA; (v) to Next or Current Generation WPNIA from Next Generation WBA; (vi) from SB-WLR to Next Generation WBA; and (vii) to SB-WLR from Next Generation WBA;

“(Intra Operator) Migration” is the facility whereby an OAO can switch the wholesale input(s) it is currently using to support the provision of its retail service to its retail customer. As a result of the switch, the retail customer’s service continues to be provided by the same OAO. The wholesale inputs can be switched to or from any combination of Direct Access Wholesale Products and Indirect Access (NGN) Wholesale Products;

“(Inter Operator) Migration” is the facility whereby the OAO gaining the retail customer can switch the wholesale input(s) currently being used by the losing OAO to support its retail service to the same retail customer. As a result of the switch, the retail customer’s service will now be provided by the gaining OAO. The wholesale inputs can be switched to or from any combination of Direct Access Wholesale Products and Indirect Access Wholesale Products;

“Multicast Service for Next Generation WBA” means the service which Eircom provides to the Access Seeker that accepts a single copy of a designated signal from the Access Seeker and distributes that data-stream signal within the Eircom network to multiple End Users of the Access Seeker’s;

“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 already existing exclusively copper access networks;

“Next Generation Bitstream Product” means a Next Generation WBA product provided in the wholesale broadband access market;

“NGA Footprint Areas” are the geographic areas served by Eircom’s largest Exchanges i.e. those with more than 1,800 connections;

“NGA Margin Squeeze Model” means the model used by ComReg to assess the Margin Squeeze Tests and is based on the following parameters:

- (i) Retail Margin Squeeze based on an SEO cost base, an ATC cost standard and calculated based a portfolio of products.
- (ii) Wholesale Margin Squeeze between End-to-end Next Generation Bitstream and Next Generation Bitstream based on a SEO cost base and LRAIC plus cost standard.
- (ii) Wholesale Margin Squeeze between the Next Generation Bitstream and VUA products based on a SEO cost base and LRAIC plus cost standard.
- (iii) Wholesale Margin Squeeze between VUA and SLU based on an EEO cost base and a LRAIC plus cost standard.

“Non-Disclosure Agreement” means the non-disclosure agreement contained within the WBARO;

“Non-NGA Footprint Areas” are the geographic areas other than the areas served by Eircom’s largest Exchanges i.e. those with fewer than 1,800 connections;

“ODF” means the optical distribution frame;

“OSI” means open systems interconnection;

“OSS” means operational support systems;

“Other Authorised Operator(s) or “OAO(s)” means an Undertaking that is not Eircom, providing an electronic communications network or an electronic communications service authorised under Regulation 4 of the Authorisation Regulations;

“Performance Metrics” means the aggregate performance levels achieved by Eircom within a specified period, as calculated in accordance with the methodology and service parameter definitions set out in its Service Level Agreements;

“Point of Handover” means the physical point at which two networks are interconnected to allow traffic to pass between these networks;

“Retail Margin Squeeze” as described in section 11 of this Decision Instrument means the setting of a retail price or prices (in the case of a portfolio of products) by Eircom for a standalone retail broadband product(s) which does not allow a Similarly Efficient Operator, relying on Next Generation Bitstream (or End-to-end Next Generation Bitstream) to provide the same or similar retail product or products (in the case of a portfolio of products) at sufficient margin by reference to the sheet entitled “Retail to E-E NG Bitstream test” in the NGA Margin Squeeze Model;

“Retail Margin Squeeze Test” means the test used to identify a Retail Margin Squeeze;

“SB-WLR” means single billing wholesale line rental;

“Service Level Agreements (SLAs)” are legally binding contracts between Eircom and OAOs in relation to the service levels which Eircom commits to from time to time, as more particularly set out in the Wholesale Broadband Access Reference Offer. For the avoidance of doubt, however, to the extent that there is any conflict between the SLAs and Eircom’s obligations now set out herein, it is the latter which shall prevail;

“Shared Access to the local loop” also known as “Line Share” means the product whereby the high frequency capacity of a line is provided to OAOs, as more fully described in the ARO, as may be amended from time to time and refers to the provision to a beneficiary of access to the Local Loop or Local Sub-Loop of the notified operator, authorising the use of the non-voice band frequency spectrum of the twisted metallic pair; the Local Loop continues to be used by the notified operator to provide the telephone service to the public;

“Shared Sub-Loop Unbundling”; means the provision to a beneficiary of access to the local Sub-Loop of the notified operator, authorising the use of the non-voice band frequency spectrum of the twisted metallic pair; the local Sub-Loop continues to be used by the notified operator to provide the telephone service to the public;

“Significant Market Power obligations” or “SMP obligations” are those obligations set out in Regulation 9 to 14 of the Access Regulations, as may be amended from time to time;

“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 yet enjoy the same economies of scale and scope as Eircom;

“Sub-Loop” means the portion of the local loop which runs from a street side cabinet to a home or premises;

“Sub-Loop Unbundling also known as SLU” is an implementation of unbundled access to the Sub-Loop. It excludes the portion of the local loop between the exchange and street side cabinet. SLU is contained in the market for Wholesale (Physical) Network Infrastructure Access (Market 4) as set out in ComReg Decision No. D05/10;

“Subscriber(s)” shall have the same meaning as under Regulation 2 of the Framework Regulations, as may be amended from time to time;

“Unbundled Local Metallic Path” or “ULMP” is the implementation of Full Unbundled Access to the Local Loop;

“Undertaking(s)” shall have the same meaning as under the Framework Regulations as may be amended from time to time;

“Virtual Unbundled Access” or “VUA” means the wholesale active access product proposed by Eircom. It is an enhanced Layer 2 product which allows the handover or interconnection of aggregate End Users’ connections at the local exchange. It allows a level of control to the Access Seeker similar to that afforded by a fully unbundled local loop;

“WBA” means wholesale broadband access comprising non-physical or active network access including “Bitstream” access at a fixed location. It includes Current Generation WBA and Next Generation WBA and is synonymous with the Market;

“(Current Generation) WBA” means WBA provided over current generation access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets) that is copper based;

“(Next Generation) WBA” means WBA provided over next generation access network infrastructure and its Associated Facilities (including self-supply by Eircom

for the purpose of serving its downstream markets), that is either exclusively fibre or a combination of fibre and copper;

“(Eircom’s) website” means for the purpose of this Decision Instrument, Eircom’s publicly available wholesale website;

“Wholesale Broadband Access Reference Offer” or “WBARO” is the offer of contract by Eircom Limited to OAOs in relation to Current Generation WBA (currently the WBARO version 1.0). For the avoidance of doubt the WBARO includes the documents which are expressly referred to as being part of the WBARO. For the avoidance of doubt, however, to the extent that there is any conflict between the WBARO and Eircom’s obligations now set out herein, it is the latter which shall prevail;

“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 NGN wholesale products;

“Wholesale Margin Squeeze between End-to-end Next Generation Bitstream and Next Generation Bitstream”, means the setting of a wholesale price for End-to-end Next Generation Bitstream which does not allow a Similarly Efficient Operator relying on NGA Bitstream to provide the same or similar wholesale inputs at sufficient margin by reference to the sheet entitled “E-E NG Bits to NGA Bits test” in the NGA Margin Squeeze Model;

“Wholesale Margin Squeeze between Next Generation Bitstream and VUA”, as described in Section 11 of this Decision Instrument, means the setting of a wholesale price for Next Generation Bitstream which does not allow a Similarly Efficient Operator relying on VUA to provide the same or similar wholesale inputs at sufficient margin by reference to the sheet entitled “NGA Bitstream to VUA test” in the NGA Margin Squeeze Model;

“Wholesale Margin Squeeze between VUA and SLU” as described in section 11 of this Decision Instrument means the setting of a wholesale price for VUA which does not allow an Equally Efficient Operator relying on SLU to provide the same or similar wholesale inputs at sufficient margin by reference to sheet entitled “VUA to SLU test” in the NGA Margin Squeeze Model;

“WPNIA” means wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location. It includes Current Generation WPNIA and Next Generation WPNIA and is synonymous with the Market as set out in ComReg Decision No. D05/10;

“(Current Generation) WPNIA” means WPNIA provided over current generation copper access network infrastructure and its Associated Facilities (including self-supply by Eircom for the purpose of serving its downstream markets) and includes

but is not limited to those facilities and services and variants of those, which are specified in the current Version 2.0 of Eircom's Access Reference Offer (ARO);

“(Next Generation) WPNIA or NG WPNIA” means WPNIA provided over next generation fibre access network infrastructure and its associated facilities (including self-supply by Eircom for the purpose of serving its downstream markets). It includes where the fibre access network infrastructure and copper access network infrastructure are combined within the Local Loop.

3. SCOPE AND APPLICATION

- 3.1 This Decision Instrument applies to Eircom in respect of activities falling within the scope of the Market.
- 3.2 This Decision Instrument is binding upon Eircom and Eircom shall comply with it in all respects.
- 3.3 This Decision Instrument relates to:
 - a) an amendment of section 12 of Part II of the Decision Instrument annexed to ComReg Decision No. D06/11 which imposes obligations relating to price control and cost accounting, with regard to Current Generation Migrations.
 - b) a further specification of the SMP obligations for Next Generation WBA which were set out in Part III of the Decision Instrument annexed to ComReg Decision No. D06/11.
 - c) an amendment of ComReg Decision No. D01/06 in respect of Next Generation WBA.

PART II - SMP OBLIGATIONS IN RELATION TO CURRENT GENERATION WBA (SECTION 4 OF THE DECISION INSTRUMENT)

4. SMP OBLIGATIONS IN RELATION TO CURRENT GENERATION WBA

- 4.1 Section 12 of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 is hereby amended in respect of Migrations such that, with regard to charges associated with Current Generation Migrations Eircom shall set a single charge based on the likely costs of migrations for both Current Generation and Next Generation in the WBA Market and Current Generation and Next Generation WPNIA spread across all of the likely volumes over the same period, including all of the retail and wholesale access paths related to the likely NGA Footprint Areas. The remaining provisions of Part II of the Decision Instrument annexed to ComReg Decision No. D06/11 remain unaffected, unless stated otherwise.

PART III - SMP OBLIGATIONS IN RELATION TO NEXT GENERATION WBA (SECTIONS 5 TO 11 OF THE DECISION INSTRUMENT)

5. SMP OBLIGATIONS IN RELATION TO NEXT GENERATION WBA

- 5.1 ComReg is further specifying certain SMP obligations on Eircom in respect of Next Generation WBA in the Market in accordance with and pursuant to Regulations 8, 9, 10, 11, 12, 13 and 18 of the Access Regulations, as detailed further in sections 6 to 11 below.

6. OBLIGATIONS TO PROVIDE ACCESS

- 6.1 Pursuant to Regulation 12(1) of the Access Regulations, Eircom shall meet all reasonable requests from OAOs for the provision of Access, including Associated Facilities.
- 6.2 Without prejudice to the generality of section 6.1 and notwithstanding the provisions of sections 6.3 and 6.4, pursuant to Regulation 12(2) of the Access Regulations, Eircom shall provide and grant Access to OAOs to the following particular services and facilities:
- (i) Next Generation Bitstream;

- (ii) VUA;
- (iii) Backhaul for Next Generation Bitstream and VUA;
- (iv) In-building handover;
- (v) In-span handover;
- (vi) Co-location
- (vii) Customer-sited handover;
- (viii) Migrations; and
- (ix) Multicast service for Next Generation Bitstream and VUA.

6.3 Eircom shall offer Access to the services and facilities described in section 6 in accordance with the requirements of this Decision Instrument and any product descriptions and on the terms and conditions which are specified in the current version of the WBARO, or elsewhere on Eircom's website as may be amended from time to time. For the avoidance of doubt, however, to the extent that there is any conflict between the WBARO and related manuals and Eircom's obligations now set out herein, it is the latter which shall prevail.

6.4 Without prejudice to the generality of sections 6.1, 6.2 and 6.3 Eircom shall:

- (i) Pursuant to Regulation 12 (2) (b) of the Access Regulations, negotiate in good faith with OAOs requesting Access;
- (ii) Pursuant to Regulation 12 (2) (c) of the Access Regulations, not withdraw Access to services and facilities already granted without the prior approval of ComReg and in accordance with terms and conditions determined by ComReg;
- (iii) Pursuant to Regulation 12 (2) (e) of the Access Regulations, grant open Access to technical interfaces, protocols and other key technologies that are indispensable for the interoperability of services or virtual network services; and
- (iv) Pursuant to Regulation 12 (2) (h) of the Access Regulations, provide Access to OSS or similar software systems necessary to ensure fair competition in the provision of services.

7. CONDITIONS ATTACHED TO THE ACCESS OBLIGATIONS

- 7.1 Eircom shall, in relation to the obligations set out under section 6 grant Access to Next Generation WBA and Associated facilities, pursuant to Regulation 12(3) of the Access Regulations, in a fair, reasonable and timely manner.
- 7.2 Without prejudice to the generality of section 7.1, Eircom shall:
- (i) Conclude, maintain and keep updated, as appropriate, legally binding SLAs which include provision for associated Performance Metrics with OAOs;
 - (ii) Negotiate in good faith with OAOs in relation to the conclusion of legally binding and fit-for-purpose SLAs;
 - (iii) Ensure that all SLAs include provision for service credits arising from a breach of an SLA. Agreed service credits shall be a matter for negotiation between Eircom and Access Seekers and recovery of service credits shall be in the first instance, a matter for the individual Access Seeker and Eircom;
 - (iv) SLAs should detail how service credits are calculated, to include the provision of an example calculation;
 - (v) Payment of service credits, where they occur, shall be made in a timely and efficient manner.
- 7.3 Where a request by an OAO for provision of Access, or a request by an OAO for provision of information is refused or met only in part, Eircom shall, provide the objective criteria for refusing same to the OAO which made the request.

8. OBLIGATION OF NON-DISCRIMINATION

- 8.1 Eircom shall have an obligation of non-discrimination as provided for by Regulation 10 of the Access Regulations in respect of Access.
- 8.2 Without prejudice to the generality of section 8.1, Eircom shall:
- (i) Apply equivalent conditions in equivalent circumstances to other Undertakings providing equivalent services; and

- (ii) Ensure that all services and information are provided to other Undertakings under the same conditions and of the same quality as the services and information that Eircom provides to its own services or those of its subsidiaries or partners.
- 8.3 Without prejudice to the generality of section 8.1 and section 8.2, where Eircom provides Next Generation WBA it will do so on an Equivalence of Inputs basis.
- 8.4 Where Eircom can demonstrate to the satisfaction of ComReg that reasonable steps were taken to comply with section 8.3 and that it would be unduly burdensome to provide Next Generation WBA on an Equivalence of Inputs basis, or that it was not possible to comply with section 8.3, Eircom shall provide Next Generation WBA on an Equivalence of Outputs basis. The provision of services and facilities on an Equivalence of Inputs basis shall allow for very minor or insignificant differences, however any such differences shall be brought to ComReg's attention.
- 8.5 In accordance with the non-discrimination obligations contained in sections 8.3 and 8.4, Eircom shall demonstrate in writing to the satisfaction of ComReg that Next Generation WBA services and facilities have been provided on an Equivalence of Inputs basis or where appropriate an Equivalence of Outputs basis. For the purpose of this section, Eircom shall provide sufficient information to ComReg seven months prior to any offer of a new Next Generation WBA service or facility coming into effect and three months in advance of any change to an existing Next Generation WBA service or facility coming into effect.
- 8.6 With regard to Next Generation WBA services and facilities which have been offered prior to the Effective Date of this Decision Instrument Eircom shall demonstrate in writing to the satisfaction of ComReg, within six months of the Effective Date of this Decision Instrument, and in accordance with the non-discrimination obligations contained in sections 8.3 and 8.4, that such Next Generation WBA services and facilities have been provided on an Equivalent of Inputs basis or where appropriate, an Equivalence of Output basis.
- 8.7 It shall be a condition of Eircom's non discrimination obligations that Eircom publish Key Performance Indicators (KPIs) on its website. The specification of the content of the KPIs shall be in accordance with ComReg Decision No. 05/11.
- 8.8 Eircom shall notify ComReg, at the date of agreement, of any potential co-investment arrangements that may take place between Eircom and another party.

- 8.9 For the avoidance of any doubt, the obligations set out in this section 8 shall apply irrespective of whether or not a specific request for services or information has been made by an OAO to Eircom.

9. OBLIGATION OF TRANSPARENCY

- 9.1 Eircom shall have an obligation of transparency as provided for by Regulation 9 of the Access Regulations in relation to Access.
- 9.2 Without prejudice to the generality of the obligation in section 9.1, pursuant to Regulation 9(2) of the Access Regulations, Eircom shall make publicly available and keep updated on its website, the WBARO which shall include Next Generation WBA as specified in section 6. The WBARO and all associated invoices shall be sufficiently unbundled so as to ensure that OAOs availing of such services and facilities are not required to pay for services or facilities which are not necessary for the service or facility requested, and the WBARO shall include:
- i. A description of the relevant offerings broken down into components according to market needs;
 - ii. A description of the associated terms and conditions for supply and use, including prices; and
 - iii. A description of the technical specifications and network characteristics of the Access being offered.
- 9.3 Eircom shall, unless otherwise agreed by ComReg, make publicly available and publish on Eircom's website at least six months in advance of coming into effect, any proposed changes to the WBARO, pertaining to non-price information in respect of product specification, services, facilities and or processes resulting from the offer of new Next Generation WBA services. Eircom shall notify ComReg at least one month in advance of any such publication taking place, that is, seven months prior to any changes coming into effect. This period of one month may be varied with the agreement of ComReg or at ComReg's discretion. Eircom shall not implement such proposed offers or notify such proposed offers to OAOs without prior notification to ComReg of the information specified in this section.

- 9.4 Eircom shall, unless otherwise agreed by ComReg, make publicly available and publish on Eircom's website at least two months in advance of coming into effect, any proposed changes to the WBARO, including any changes in respect of existing product specification, services, facilities and processes, or prices and price changes resulting from the offer of new Next Generation WBA services and facilities. Eircom shall notify ComReg at least one month in advance of any such publication taking place, that is, three months prior to any changes coming into effect. This period of one month may be varied with the agreement of ComReg or at ComReg's discretion. Eircom shall not implement such proposed changes or notify such proposed changes to OAOs without prior notification to ComReg of the information specified in this section.
- 9.5 Within six months of the Effective Date of this Decision Instrument Eircom shall publish information on its website in respect of Next Generation WBA services and facilities which shall be sufficient to identify and justify any differences between the services, facilities and processes as set out in the WBARO and the comparable services, facilities and processes which Eircom provides to itself. Eircom shall keep this information updated as new services or facilities are developed or deployed, or existing service or facilities are amended.
- 9.6 Pursuant to Regulation 9 (3) of the Access Regulations, ComReg may issue directions requiring Eircom to make changes to the WBARO to give effect to obligations imposed in this Decision Instrument and, pursuant to Regulation 9(3) of the Access Regulations to publish the WBARO with such changes. ComReg may issue directions to Eircom from time to time requiring it to publish information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use and prices, pursuant to Regulation 18 of the Access Regulations.
- 9.7 Without prejudice to the generality of the obligation in section 9.1 Eircom shall make public information on its website, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, and prices, in respect of the services and facilities referred to in section 6, as specified by ComReg from time to time and all other information which may be reasonably required by OAOs.
- 9.8 Eircom shall continue to publish the information and prices specified in the current Version 1.0 of the WBARO as may be amended from time to time and the related published industry documentation as may be amended from time to time and as currently published on its website.

- 9.9 It shall be a condition of Eircom's transparency obligations that Eircom publish Key Performance Indicators (KPIs) on its website. The specification of the content of the KPIs shall be in accordance with ComReg Decision No. 05/11.
- 9.10 Eircom shall publish all SLAs (and any updates thereto) on its website.
- 9.11 Eircom shall be obliged to publish on its website information about Performance Metrics.
- 9.12 Eircom shall make publicly available, on a quarterly basis or such other suitably regular basis as may be specified by ComReg, sufficient information regarding the introduction of new infrastructures, technologies, services or facilities which could reasonably be expected to support services or facilities in respect of Next Generation WBA. Without prejudice to the foregoing, where such information to be provided is of a commercially sensitive nature, Eircom is obliged to publish details, on a case by case basis, identifying the category and a description of such information which will be made available to OAOs upon the signing of a Non-Disclosure Agreement ("NDA"). The NDA shall also be published by Eircom.

10. OBLIGATION OF ACCOUNTING SEPARATION

- 10.1 Pursuant to Regulation 11 of the Access Regulations, Eircom shall have an obligation to maintain separated accounts. All of the obligations in relation to accounting separation, set out in Annex 1 and 2 of ComReg Decision No. D08/10 applying to Eircom and in force immediately prior to the Effective Date of this Decision Instrument related to the Market shall be maintained in their entirety.

11. OBLIGATIONS RELATING TO PRICE CONTROL AND COST ACCOUNTING

- 11.1 Pursuant to Regulation 13 (1) of the Access Regulations, Eircom shall continue to comply with all of the obligations in relation to cost accounting in force immediately prior to the Effective Date of this Decision Instrument .
- 11.2 Pursuant to Regulation 13(1) of the Access Regulations, Eircom shall maintain appropriate cost accounting systems in respect of products, services or facilities referred to in section 6.

- 11.3 Pursuant to Regulation 13 (1) of the Access Regulations, with regard to Next Generation WBA, Eircom shall have an obligation relating to price control and cost accounting. Prices charged by Eircom to any other Undertaking for Access to or use of those products, services or facilities referred to in section 7 shall be subject to the existing obligations as set out in ComReg Decision No. D01/06 and any other obligations applying to Eircom in force immediately prior to the Effective Date of this Decision Instrument.
- 11.4 For the avoidance of doubt, the obligations contained in ComReg Decision No. D01/06 shall be maintained in their entirety with regard to Current Generation WBA.
- 11.5 With regard to only Next Generation WBA, sections 4.5.1, 4.5.2 and 4.5.3 of of ComReg Decision No. D01/06 under “Amendments to Existing Products” shall not apply.
- 11.6 The following amendments and replacements of ComReg Decision No. D01/06 shall apply in the context of only Next Generation WBA:
- (i) the definition of “product” contained in section 4.2 (“Definitions”) shall be replaced with the following;

“product” for the purposes of this decision instrument is any offering at the wholesale or retail level and is a subset of a service.
 - (ii) the reference to “retail minus price control” contained in section 4.4.1 (“Price Control Obligation: General”) is replaced with the term “Retail Margin Squeeze Test” which has the meaning contained in section 2 of this Decision Instrument
 - (iii) the expression “a material amendment” shall be substituted for the expression “an amendment” contained in first sentence of section 4.5.4 (“Amendments to Existing Products”).
 - (iv) section 4.7.1 (“Promotions”) shall be replaced with the following wording *“In the context of Next Generation WBA, Eircom shall ensure that any promotions offered at the retail level shall comply with the Retail Margin Squeeze Test in accordance with [Decision XX/12].”*
 - (v) section 4.8.1 (“Discounts and Bundles”) shall be replaced with the following wording: *“In the context of Next Generation WBA, Eircom shall ensure that any discounts or bundles that are offered at the retail level shall comply with the Retail Margin Squeeze in accordance with [ComReg Decision No. XX/12].”*

- 11.7 ComReg Decision No. D01/06 is subject to any amendments or further specifications following the outcome of this consultation with regard to the retail costs and more particularly the levels of costs associated with such retail costs as marketing and sales, help desk costs, IP connectivity costs, modem costs (including installation costs) and Multicast costs which are described at section 11.10.1 of this draft Decision Document.
- 11.8 With regard to Next Generation WBA only Eircom shall have an obligation not to cause a margin/price squeeze.
- 11.9 Notwithstanding the generality of section 11.8, Eircom shall ensure that it does not create a Retail Margin Squeeze between:- (i) the retail price or prices (in the case of a portfolio of products) for a standalone retail broadband product(s); and (ii) the price for Next Generation Bitstream (or End-to-End Next Generation Bitstream), based on the NGA Margin Squeeze Model.
- 11.10 Notwithstanding the generality of section 11.8, Eircom shall ensure that it does not create a Wholesale Margin Squeeze between End-to-End Next Generation Bitstream and Next Generation Bitstream, that it between:- (i) the price for End-to-End Next Generation Bitstream; and (ii) the price for NGA Bitstream based on the NGA Margin Squeeze Model.
- 11.11 Notwithstanding the generality of section 11.8, Eircom shall ensure that it does not create a Wholesale Margin Squeeze between Next Generation Bitstream and VUA, that is between:- (i) the price for NGA Bitstream; and (ii) the price for VUA based on the NGA Margin Squeeze Model.
- 11.12 Notwithstanding the generality of sections 11.8, Eircom shall ensure that it does not create a Wholesale Margin Squeeze between VUA and SLU that is between:- (i) the price for VUA; and (ii) the price for SLU, based on the NGA Margin Squeeze Model.
- 11.13 With regard to the charges imposed by Eircom on Access Seekers associated with Current Generation and Next Generation Migrations, Eircom shall set a single charge, based on the likely costs of migrations for both Current Generation and Next Generation WBA and Current Generation and Next Generation WPNIA spread across all of the likely volumes over the same period, including all of the retail and wholesale access paths related to the likely NGA Footprint Areas.

- 11.14 Notwithstanding section 11.13, on an annual basis from the Effective Date of this Decision Instrument Eircom shall ensure that there is no over or under recovery of Migration costs when assessed against its Regulated Accounts. Where there is an over recovery of costs, Eircom shall refund the relevant OAOs. Where there is an under recovery of costs, Eircom shall adjust the relevant Migration charge accordingly going forward.
- 11.15 Within one year from the Effective Date of this decision and annually thereafter, Eircom shall submit to ComReg a detailed written statement of compliance demonstrating Eircom's compliance with the margin squeeze tests at section 11.9, 11.10, 11.11 and 11.12, which are based on the NGA Margin Squeeze Model referred to in this Decision Instrument. The statement of compliance shall include the following:
- (i) A full and true disclosure of all material facts and stating precisely how Eircom is in compliance with the obligations set out in section 11.9, 11.10, 11.11 and 11.12, which are based on the NGA Margin Squeeze Model.
 - (ii) All relevant supporting documentation for the purpose of demonstrating compliance with the obligations set out in section 11.9, 11.10, 11.11 and 11.12, which are based on the NGA Margin Squeeze Model.
 - (iii) Demonstration of how any adjustments to the price of the equivalent wholesale offering of a new or existing product would be in compliance with the obligations set out in section 11.9, 11.10, 11.11 and 11.12, which are based on the NGA Margin Squeeze Model.
- 11.16 Notwithstanding section 11.15, Eircom shall pre-notify ComReg of all retail prices for new next generation standalone broadband products and services and for retail price changes to existing next generation standalone broadband products and services no later than 15 working days before the revised prices are expected to come into effect.
- 11.17 For avoidance of doubt and pursuant to Section 9.4 of this Decision Instrument, Eircom shall pre-notify ComReg of all wholesale prices for new next generation standalone broadband products and services and for wholesale price changes to existing next generation standalone broadband products and services no later than three months before the revised prices are expected to come into effect.

- 11.18 Notwithstanding section 11.15, and 11.17, for all new wholesale prices or changes to existing wholesale prices associated with next generation standalone broadband products and services, Eircom shall furnish to ComReg a detailed written statement of compliance demonstrating Eircom's compliance with the wholesale margin squeeze tests referred to in section 11.10, 11.11 and 11.12 of this Decision Instrument. The statement of compliance shall include the information set out in section 11.15 (i), (ii) and (iii).
- 11.19 Upon receipt of the statement of compliance referred to in section 11.15, and 11.18, ComReg shall review the statement of compliance and within fifteen working days ComReg can do one or more of the following:
- (i) Provide Eircom with both (a) an appropriate written opinion in relation to the statement of compliance; and (b) written confirmation that the making available or offering for sale of the new or existing product is conditional only upon Eircom being in compliance with its obligations at section 11.9, 11.10, 11.11 and 11.12.
 - (ii) Request any further information from Eircom and set a deadline by which such information shall be provided. Eircom shall provide the requested information by the deadline and in such format and to the level of detail as stipulated by ComReg. Upon receipt of the requested information from Eircom and within the fifteen working day period ComReg may do one or more of the things referred in (i), (iii) or (iv) of this section.
 - (iii) Inform Eircom in writing that the amendment(s) would in ComReg's opinion, not be in compliance with the obligations referred to in sections 11.9, 11.10, 11.11 and/or 11.12, giving reasons and also inform Eircom that the amendment to the existing product or the new product if made operative or available will or could result in the issuing of a notification of non-compliance under Regulation 19(1) of the Access Regulations;
 - (iv) For the purposes of further specifying requirements to be complied with by Eircom relating to the obligations set out in sections 11.9, 11.10, 11.11 and 11.12, issue a direction or directions to Eircom under Regulation 18 of the Access Regulations, to refrain from making operative corresponding adjustments to the wholesale offering of any existing or new product; or

- (v) For the purpose of further specifying requirements to be complied with by Eircom relating to the obligations set out in sections 11.9, 11.10, 11.11 and 11.12, issue a direction or directions to Eircom under Regulation 18 of the Access Regulations, to refrain from making available or offering for sale, the wholesale offering of any new product.

PART IV - OBLIGATIONS AND EFFECTIVE DATE (SECTIONS 12 TO 15 OF THE DECISION INSTRUMENT)

12. STATUTORY POWERS NOT AFFECTED

- 12.1 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) from time to time.

13. MAINTENANCE OF OBLIGATIONS

- 13.1 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, are continued in force by this Decision Instrument and Eircom shall comply with same.
- 13.1 If any section, clause or provision or portion thereof contained in this Decision Instrument is 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 section, clause or provision or portion 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 thereof of this Decision Instrument, and shall not in any way affect the validity or enforcement of this Decision Instrument.

14. WITHDRAWAL OF SMP OBLIGATIONS

- 14.1 Part III of the Decision Instrument annexed to Decision Instrument D06/11 is hereby withdrawn and replaced with the obligations in this Decision Instrument.

15. EFFECTIVE DATE

15.1 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.

ALEX CHISHOLM

CHAIRPERSON

THE COMMISSION FOR COMMUNICATIONS REGULATION

THE DAY OF 2012

Chapter 14

14 Regulatory Impact Assessment

- 14.1 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 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 different stakeholders.
- 14.2 ComReg’s approach to the RIA is set out in the Guidelines published in August 2007 in ComReg Document Nos. 07/56 & 07/56a. In conducting the RIA, ComReg takes into account the RIA Guidelines¹⁶², 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 requires ComReg to comply with Ministerial Policy Directions. Policy Direction 6 of February 2003¹⁶³ 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 adopted under the Government’s “Better Regulation” programme.
- 14.3 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. As decisions are likely to vary in terms of their impact, if after initial investigation, a decision appears to have relatively low impact, ComReg may carry out a lighter RIA in respect of those decisions.

¹⁶² See “Revised RIA Guidelines How to Conduct a Regulatory Impact Analysis”, June 2009. [http://www.betterregulation.ie/eng/Developments in Better Regulation Policy/Revised RIA Guidelines.pdf](http://www.betterregulation.ie/eng/Developments%20in%20Better%20Regulation%20Policy/Revised%20RIA%20Guidelines.pdf)

¹⁶³ Ministerial Policy Direction made by the Minister of Communications, Marine and Natural Resources on 21 February 2003.

14.1 Proportionality of access

14.4 Regulation 12(1) of the Access Regulation requires us to ensure that when we consider imposing an obligation of access, we examine the consequences of denial of access or the use of unreasonable terms and conditions to the extent that they would:

- hinder the emergence of a sustainable competitive market at the retail level
- not to be in the interest of end-users, or
- hinder the achievement of the objectives set out in section 12 of the Act of 2002 and Regulation 16 of the Framework Regulations.

14.5 Regulation 12(1) of the Access Regulation has been considered in our analysis of the potential competition problems in Section 3 and through the analysis of potential and past anti-competitive behaviour, particularly denial or hindrance of access. In Section 3.3 Competition Problems, we find that the potential to foreclose markets is present where there is a vertically integrated SMP operator. The purpose of *ex ante* regulation is to prevent an operator with SMP from behaving in a manner which would inhibit the development of competition. In these markets, for WPNIA and WBA, it is considered necessary to provide access and to ensure that any potential denial of access or unreasonable terms and conditions, are circumvented. In fact, we point to the evidence and experience of such unfavourable behaviours on these markets.

14.6 Given that the potential to foreclose or hinder access on favourable terms exists on these markets, should access not be provided to alternative operators, the needs of end-users would not be well served. This is described further in light of the provisions of the 2002 Communications Act and Regulation 16 of the Framework Regulations.

14.7 Section 12 of the 2002 Communications Act and Regulation 16 of the Framework Regulations, requires us to ensure that the objectives of the Commission (ComReg) are met in exercising its functions. These objectives include:

- (i) To promote competition,
- (ii) To contribute to the development of the internal market,

- (iii) To promote the interests of users within the European Union (including promoting the ability of end-users to access and distribute information or use applications and services of their choice).

14.8 Our objective to promote competition is central to the policies set out in this consultation. Our approach takes utmost account of the NGA Recommendation, which aims to encourage access to infrastructure at the deepest layer of the network, which should facilitate long term sustainable competition. In Section 3.2 we set out our principles for policy decisions for next generation access; underpinning these principles is that access-based competition will continue to be facilitated after the transition to NGA, by proportionate application of the ladder of investment. By encouraging alternative access and fostering competition, we are in fact facilitating price, choice and quality for end-users which are safeguarded by competitive forces.

14.9 ComReg contributes to the internal market by adhering to the European regulatory Framework and by taking utmost account of the NGA Recommendation. In Section 3.1.4 we consider the consistent application of regulation across markets and at a European level. Examples of this can be seen throughout each of our policy decisions and we have applied this guidance to suit the particular circumstances. Furthermore, we consider and contribute to the policy decisions of BEREC and examples of this can be seen in Section 6.2.4, in our analysis of VUA and in Section 8 in terms of our understanding and application of the non-discrimination obligation. Furthermore, we attempt to promote the interests of end-users within the European Union by ensuring appropriate wholesale regulation, which will foster the availability of applications and services of their choice. We consider that our application of the regulatory framework which facilitates the promotion of competition and development of the internal market, underpin the objective to promote the interests of end-users.

14.10 Regulation 12(4) of the Access Regulation asks us to consider the following factors to measure the proportionality and justification of mandating forms of access across both markets:

- The technical and economic viability of providing access
- The feasibility of providing access in relation to capacity available
- The initial investment of the provider¹⁶⁴

¹⁶⁴ This criterion is similar to new Regulation 16 (2) (d) of the Framework Regulations 2011 and ComReg confirms for completeness we also considered this new text in the conclusions reached on this point.

- The need to safeguard competition
- Any intellectual property rights
- the provision of pan European services

14.11 These aspects have been taken into account when assessing the requirement to provide access. In particular, the principle of proportionality must be thoroughly assessed in the case of wholesale physical network infrastructure access; access to civil engineering infrastructure, fibre unbundling, terminating segments and fibre to the node.

14.12 In line with the guidance of the NGA Recommendation, we consider that access to the passive infrastructure is necessary because duplication of the access network in an NGA context is uneconomical.

14.13 We consider each of the mandated products on this basis:

14.14 It is considered to be proportionate to mandate access to civil engineering infrastructure as reasoned in Section 5. Furthermore, we consider that there are circumstances where an alternative form of access should be made available and where there could be technical or structural difficulties in gaining access. In certain circumstances there may be a finite portion of space available in a duct or a duct may have collapsed, and it would not be possible to grant access or the costs associated would be prohibitive. Where this is the case, access to dark fibre should be offered subject to certain conditions.

14.15 Access to dark fibre should be provided in exceptional circumstances and based on a reasonable request for access and we consider this approach to be proportionate as it seeks to overcome a barrier to entry, but in a measured and proportionate way. The reasonableness of access to dark fibre, specifically takes into account constraints on the future available capacity. ComReg retains the power to assess any request for its reasonableness and the conditions where this is likely are outlined in this consultation.

14.16 We consider that it is proportionate to mandate access to the fibre loop, in order to ensure competitive access to the physical infrastructure. Were this not to be imposed we would eliminate the opportunity for any Access Seeker to connect at the deepest level of the network and would contravene one of the main aims of the NGA Recommendation.

- 14.17 It is not considered proportionate to mandate access to the terminating segment in the case of FTTH. This remedy is more applicable in Member States which are characterised by high density populations with wide spread multi-dwelling premises. The FTTH network deployment planned by Eircom will be present in only a small proportion of cases and so access to the terminating segment is not relevant. Additionally, the vast majority of any access requirements for FTTH should be met through access to the fibre loop.
- 14.18 In the case of access to the sub-loop in the case of FTTN/C, we consider that it is both proportionate and necessary to continue to mandate this form of access in the WPNIA market, in line with the exiting obligations of the WPNIA Decision, ComReg Decision D05/10. Given the potential impact of emerging bandwidth enhancing technologies, we are consulting on a range of options for the application of this obligation in NGA footprint areas. We consider this approach to be proportionate, whereby it should establish the level of demand and interest in SLU and the deployment of such technologies. The options which are proposed take into account the long term sustainability of competition and the consultation offers an opportunity for interested parties to give views on a necessary and proportionate measure.
- 14.19 Our aim is to ensure sustainable, long term competition and to provide remedies that will be relevant in a market which will evolve and change. However, the initial outlay of Eircom needs to be considered along with the relevant investment risks. The choice of relevant pricing and costing methodologies is tailored to reflect the blend of cost and risk profile across legacy access products and next generation access products. This is discussed in Section 11 of this Consultation.
- 14.20 Protection of the intellectual property and confidentiality of Eircom has been taken into consideration. For example, the WPNIA Decision and the WBA Decision recognise that there may be commercial sensitivity surrounding the provision of certain information and services to all undertakings. It was therefore proposed that it was reasonable to restrict the obligation regarding non-discrimination to the provision of services and information to Access Seekers¹⁶⁵ and this applies to NGA products and services.
- 14.21 When considering the impact of our decisions on Pan-European Services we have followed closely, the guidance of the NGA Recommendation. We are pertinently aware of the importance of a coordinated European approach to NGA regulation to provide regulatory certainty and incentivise investment.

¹⁶⁵ See paragraph 7.106 of the WPNIA Decision Instrument which states that “It should be noted that the above requirement is to provide WPNIA services or information to ‘Access Seekers’ rather than ‘OAOs’ where an Access Seeker is an OAO which has already agreed a Wholesale Broadband Access Reference Offer (WBARO) with Eircom, or has signed a Non-Disclosure Agreement with Eircom and paragraph 7.106 of the WBA Decision.

- 14.22 Furthermore, where dominance has been found, it is our statutory function and objective to safeguard competition as well as taking into account Pan-European implications. The standard of the non-discrimination obligation is being examined by the European Commission and this has been considered in our analysis. Moreover, we have taken the guidance of the NGA Recommendation into account in order to prevent discrimination and ensure equivalence of access.
- 14.23 We have considered the principles of Regulation 12(4) of the Access Regulation in our decision making for NGA WPNIA and WBA. This is discussed further as part of our regulatory impact assessment.
- 14.24 Pursuant to Regulation 13(1) of the Access Regulations, where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessive level or may apply a price squeeze to the detriment of end-users, ComReg may impose 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. The WBA and WPNIA market analysis decisions imposed price control obligations at a high level and these obligations are being further specified now in this consultation. Pursuant to Regulation 13(2), to encourage investments by the operator, including in next generation networks, ComReg shall when considering the imposition of obligations in relation to price control and cost accounting take into account the investment made by the operator which ComReg 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. Pursuant to Regulation 13(3), ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits. These principles have been taken account of in Section 11 of this document and are also referred to below.

14.2 Steps for assessing regulatory options

- 14.25 In assessing the available regulatory options, ComReg's approach to the RIA followed five steps as follows:

- 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.

14.26 In the case at hand, ComReg is considering how to specify a clear path of regulation for the WPNIA and WBA markets when next generation services are implemented in these markets. Additionally, we are considering how any obligations should be practically and fairly supported through transparency and non-discrimination obligations imposed on the SMP operator. The proposed specification of access, transparency and non-discrimination remedies, is intended to assist us in ensuring the effective application of the remedies in practice.

14.27 The principles applied when assessing and selecting remedies are:

- Does current regulation achieve objectives as effectively as possible?
- Are changes to regulation required to improve regulation in these markets?
- The impact of the proposed changes
- Assessing the impacts and choosing the best option.

14.28 In choosing remedies pursuant to Regulation 8(6) of the Access Regulations, ComReg must ensure they are:

- Based on the nature of the problem identified;
- Proportionate and justified in the light of the objectives laid down in section 12 of the Communications Regulation Act; and
- Only imposed following consultation in accordance with Regulations 12 and 13 of the Framework Regulations.

14.3 Describe the policy issue and identify the objectives

14.29 The principal objective in designing the appropriate remedies is the promotion of efficient investment in access network infrastructure while retaining the most appropriate solutions where Eircom has SMP. More importantly, the remedies proposed must be consistent with planned and future NGA deployments, and be consistent with the objectives as set out in section 12 of the Communications Regulation Act, which aims to:

- Ensure that there is no distortion or restriction of competition;
- Encourage efficient investment in infrastructure and promoting innovation;

- Promote the interests of users within the Community; and
- Encourage access to the internet at a reasonable cost to end-users.

14.30 The intention of the proposed measures is to provide regulatory certainty to the market, in light of significant change, so as to facilitate the development of next generation investment and to facilitate operator strategy.

14.31 Regulatory certainty translates to clarity on the wholesale regime within an NGA context. The NGA Recommendation outlines an approach with specific objectives for next generation services and its guidance needs to be considered in the context of the market conditions in Ireland.

14.32 Timely intervention influences investment decisions and a lack of clarity could hinder next generation investment. A robust regulatory regime is required and the cost of regulatory delay would be felt by all market players. Furthermore, we consider that the planned investment by Eircom has the potential to benefit market players and customer choice, where conditions of competition are ensured.

14.33 In markets where Eircom has significant market power, we do not consider that there is any alternative operator in a position to provide next generation access for WPNIA or WBA services. While certain parts of the retail market could be serviced by alternative forms of infrastructure such as cable, it is unlikely that an alternative form of next generation wholesale access (with the ubiquity, capacity and scale of the Eircom network) would emerge, particularly in the short to medium term, limiting alternative product offerings to current generation access. As discussed in the competition problems, in Section 3 of this Consultation, we believe that Eircom has the potential to foreclose based on cost benefit analysis of the vertical arithmetic. There is a benefit to Eircom to exclude a wholesale entrant and to foreclose the downstream market, to undermine long term wholesale competition. We have identified that there is a need for access in these markets and that alleviation of regulation would not be appropriate given the structure of these markets and the planned NGA investment by Eircom. Furthermore, the pricing regime takes into account this potential to foreclose and in particular the need to incentivise alternative investment in infrastructure.

14.34 The development of the internal market has been considered, as we are aware of the diverging approaches from regulators within Europe. The proposed measures have taken the European Commission's comments to other regulators on board and we have been used their experiences to inform our analysis.

- 14.35 More importantly, the remedies proposed must be consistent with planned and future NGA deployments, and be consistent with the objectives as set out in section 12 of the Communications Regulation Act, as already outlined above.
- 14.36 Between Eircom's initial investment and its ultimate decision on its NGA investment programme there is likely to be a transitional period. During the transitional period Eircom will roll out its fibre network to the areas identified within NGA areas. Eircom will also continue to provide the current legacy services over its copper network. The length of the transitional period is not certain at this point; during this time the interplay between legacy and next generation products and prices will set a challenging dynamic as the market adjusts to NGA. ComReg's regulatory objective is to facilitate a smooth and timely migration to NGA, whilst circumventing incentives to foreclose or discriminate within NGA Footprint Areas.
- 14.37 The measures proposed in this Consultation contain the flexibility to facilitate differing commercial incentives over the transitional period, however our regulatory objectives will shift as NGA is rolled out and could be aimed at incentivising an end to the transition period and migration to the fibre network. By seeking to pre-empt the possibility for anti-competitive practices by an SMP operator to induce strategic barriers to entry in markets, NGA remedies should ensure that competitors can enter and sustain competition in the markets for retail broadband and in adjacent markets.
- 14.38 The NGA remedies, in taking account of the current state of competition in certain areas, should encourage entry initially and expansion by competitors wishing to invest in their own infrastructure over time. This plays a pivotal role in our regulatory objectives. This should be encouraged at the deepest level of the network where economically feasible either on legacy LLU or Fibre (where it is present), and to allow them to differentiate their products to the extent possible where active access is used for WBA products. A further objective is to ensure that the correct incentives are set to ensure demand and migration from legacy wholesale access to next generation access. The process for the shift from legacy to next generation access needs to be carefully managed, to ensure that assets are not prematurely stranded.
- 14.39 Access to civil engineering infrastructure is crucial for the deployment of parallel fibre networks with the aim of incentivising investment from alternative operators. We believe that this is a necessary obligation to ensure that there is no restriction of competition, particularly in terms of access deeply into the network infrastructure. This provision would pave the way for efficient investment and for the promotion of innovation.

14.40 We consider that safeguarding efficient competitors from possible below cost selling by an SMP operator in respect of high-speed broadband products helps to facilitate greater regulatory certainty for longer-term competitive entry and expansion, with positive implications for the price, choice and quality of services ultimately delivered to end-users. Furthermore, NGA deployment will be centred on more densely populated areas and ComReg has considered ways in mitigating a widening digital divide.

14.4 Identify and describe the regulatory options

14.41 The regulatory options considered in the context of pricing are as follows:

Access:

- Is an obligation to meet reasonable requests for access, and negotiate in good faith with OAOs requesting access needed?

Non-discrimination:

- Are non-discrimination obligations required?

Transparency:

- Are transparency obligations, which include the requirement to make publicly available information regarding the introduction of new infrastructures, technologies, services or facilities, required

Price control:

- Is price regulation needed
- Form of price control – WPNIA and WBA Markets
- Principles for the margin squeeze tests
- Pre-notification and compliance obligations
- Migrations.

14.4.1 Is access regulation needed?

- 14.42 In the Market for WPNIA, we have taken utmost account of the NGA Recommendation when considering the forms of access for next generation WPNIA and WBA. The market review analysis for WPNIA and WBA markets, as contained in the WPNIA Decision and the WBA Decision, specified measures applicable for these markets. Though access obligations are in place from these reviews, the onset of next generation services means that fresh demand for access are evolving. The access measures stipulated in this analysis attempts to provide a degree of flexibility which will cater for a range of access that will continue to be relevant over time. This is a complex task and we have given significant consideration to stakeholder input.
- 14.43 The market conditions are such that Eircom has SMP in the Markets for WPNIA and WBA and it is possible that past and potential competition problems may emerge as NGA services are developed.
- 14.44 Access to civil engineering, is the bedrock of infrastructure investment; access to ducts, for the same purpose, is mandated through ComReg Decision D05/10. We have considered an extension of these provisions for the purpose of NGA WPNIA and find that it is both necessary and proportionate to incentivise infrastructure investment by alternative operators.
- 14.45 ComReg has taken utmost account of the NGA Recommendation in the case of unbundled access to the fibre loop, which is at the lower end of the ladder of investment. Although the investment intentions of Eircom will contain only a small portion of fibre to the home, we consider that access to the fibre loop needs to be provided. We have stated that we are agnostic to the type of technical solution that Eircom deploys for this purpose, however, in an effort to ensure proportionality, we are making provisions for the timelines for notification of the product (which is currently not included in Eircom's proposed wholesale NGA product set). Furthermore, we consider that as we flag this at the network development phase, adequate notification and consultation is provided to Eircom to make the necessary arrangements to fulfil their obligations under regulation of the WPNIA market. Moreover, the adjustment or network planning required, is no more than what should be required of an OAO, when Eircom notify industry of network or product changes.

- 14.46 The alternative scenario is that should access to the physical infrastructure not be provided, including civil engineering and unbundled access to the fibre loop, no other operator would be afforded the opportunity to invest at the lower rungs of the network. If this were to be allowed to manifest, ComReg would disregard the potential competition problems, the policy guidance from the NGA Recommendation and most importantly the statutory aims of the Framework Regulation.
- 14.47 Moreover, we have examined the impact of regulation when we are proposing not to mandate access to the terminating segment in the case of FTTH. This measure which was advised in the NGA Recommendation but is more applicable in Member States with high density population and a wide deployment of FTTH and hence we would consider it unnecessary and unjustified at this stage of market and product development.
- 14.48 Access to fibre to the node, is a critical component for access to the physical infrastructure, in particular because Eircom's roll out plans could affect the provision of access to the sub-loop. Eircom has committed to using a bandwidth enhancing technology, which allows higher speeds to be offered to end-users, called vectoring, giving significant up-lift to end-user speeds, but which is incompatible with more than one operator's active equipment being present in the street cabinet. In the interest of proportionality, we have presented three options to cater for the impact on demand for access to the sub-loop, operator's desire to deploy bandwidth enhancing technology. Each option can facilitate the implementation of vectoring or another such technology, though it has different impacts on the incumbent and the OAOs. We note the European Commission's comments to the CRC when faced with a similar policy decision:

"The Commission acknowledges, however, that in case there appears to be sufficient evidence to sustain that it is neither justified nor proportional to impose such remedy, since there is currently a lack of demand for SLU products and the imposition of such remedy could hamper the NGA investment strategy of Belgacom and thus run counter to the need to promote and ensure sustainable investment in the development of high-speed networks"¹⁶⁶.

¹⁶⁶ SG-Greffe (2011) D/10055

- 14.49 The alternative outlook would be where a decision by ComReg creates uncertainty and stymies investment in vectoring or other bandwidth enhancing technologies from being deployed; to the detriment of market players and consumers alike. Consideration is given to how this is being addressed by other NRAs and we invite stakeholders to inform our decisions. We are pertinently aware of Ireland's obligations with regard to meeting the European Digital Agenda Targets for Europe. Any technical solution that facilitates a cost and time efficient solution for delivering these targets shall be considered, however we remain open and undecided in order to ascertain market demand and regulatory impact.
- 14.50 We have considered the impact of regulation when assessing the future application of the obligation to provide access to the copper sub-loop. There are three options proposed and consulted upon and our final decision will take on board the views on industry. Though our aims are to prioritise end-user benefits, we take into consideration the impact on competition and stakeholders. Moreover, we consider the potential investment that Eircom will commit through the deployment of vectoring and assess the proportionality of an obligation of access in light of this.
- 14.51 In terms wholesale broadband access, the wholesale product set has been developed and discussed with Eircom and operators and all access products which will be available to the vertically integrated operator should be mandated through Market 5. In particular, all VDSL products will be made available to the market and the virtual unbundled access product will be made available and Eircom claim that it will have similar features to full unbundled access, whereby the OAO has a high level of control, akin to the control available through local loop unbundling. Should the enhanced wholesale access products not be mandated and made available to entrants, it would close off a superior form of access to OAOs. A situation could not be allowed to develop where Eircom's downstream arm could avail of a new or innovative access product, at the exclusion of all other operators.

14.4.2 Are non-discrimination obligations required?

- 14.52 Central to the NGA Recommendation and to the European Commission's consultation on Non-Discrimination and NGA Pricing, is the principle of non-discrimination for next generation services. Where ComReg is obliged to consider the conditions of access, we have taken the remit of our legal powers along with the specific guidance from the NGA Recommendation to ensure discrimination does not occur.

- 14.53 An obligation of non-discrimination will apply to all NGA services and processes. In particular, ComReg has outlined its interpretation and application of the standard of “Equivalence of Inputs” in the context of the non-discrimination obligation. The shift to a next generation access network will create an opportunity to deliver higher standards of equivalence to wholesale customers, in particular for processes and information systems which are developed for NGA. In circumstances where an obligation of “Equivalence of Inputs” can justifiably not be met, then an obligation of “Equivalence of Outputs” will apply.
- 14.54 This augmentation of the current standard of non discrimination is motivated by a number of considerations. The NGA Recommendation outlines that a higher standard should be met for access regulation to civil engineering infrastructure.
- 14.55 Additionally, but non-specifically, Eircom has offered improved conditions for its wholesale access seekers; on one hand because this is a unique opportunity driven by the requirement for systems development and on the other because it is undergoing a reform of its wholesale business unit. The backdrop to these initiatives is that the European Commission Questionnaire for the Public Consultation on Non-Discrimination, prompts debate on the meaning and model for the non-discrimination obligation. These elements have been considered in terms of the practical implementation of such a standard and we have been mindful of the principle of proportionality.
- 14.56 The feedback from industry and experience through the WPNIA and WBA markets is that while a newly launched wholesale product might be similar if not the same, the process and experience of systems are often inferior to that consumed by Eircom’s downstream arm. The implications are such that the OAOs are vulnerable to being at a disadvantage in terms of delivering both products and services to customers.
- 14.57 In order to raise the standard applied to the non-discrimination obligation, we are mandating EoI¹⁶⁷ for all NGA systems and processes. This is considered to be appropriate and justified, in line with the Market Reviews for WPNIA and WBA and on-going concerns of discrimination, raised by wholesale operators. Moreover, Eircom has voluntarily offered to meet the standard of EoI for the provision of NGA services.

¹⁶⁷ “Equivalence of Inputs (EoI)” means that Eircom shall provide all services and information to all Access Seekers and to itself in the same timescales, and on the same terms and conditions (including price and service levels) by means of the same systems and processes. In particular, it includes the use by Eircom of such systems and processes in the same way and with the same degree of reliability and performance when providing services and information to all Access Seekers as well as to itself;

- 14.58 EoI shall be mandated but where the costs of implementation are high then there is an alternative standard of non-discrimination which will apply. In an effort to ensure proportionality and to recognise the practical implications of regulation (and in accordance with Regulation 10 (4) of the Access Regulations¹⁶⁸) where Eircom can demonstrate to ComReg that reasonable steps were taken to comply with the requirement to provide Next Generation WPNIA and WBA on an EoI basis or that it was not possible (for technical or other reasons) to comply with this requirement, EoO¹⁶⁹ shall apply.
- 14.59 We have taken into consideration where it is not proportionate to implement this standard and propose that a lower standard of equivalence should apply, where Eircom can objectively justify that the overhead associated with achieving the higher standard is unreasonable or disproportionate.
- 14.60 It can be noted in this regard that it is also proposed to define “objective justification” is intended to mean that only those differences which are very costly to remedy or are very minor, insignificant or negligible are permissible.
- 14.61 Considering the impact of regulation, a higher standard shall be applied where it can be practically implemented, without being overly burdensome. Considering the proportionality of the remedy, we raise the standard of delivery, in line with Eircom’s stated wholesale strategy and the NGA Recommendation, yet provide for situations where it can be objectively justified to deliver an inferior standard of equivalence. We consider that this would enhance the market functioning and opportunities, which should align with Eircom’s intended focus on the wholesale market.
- 14.62 Part of the non-discrimination obligation will be to ensure that Eircom must notify ComReg before launching a product. This process will commence when Eircom formally notifies a new product. This is justified as previously products have been launched and issues associated with non-discrimination have arisen after launch. By Eircom providing the information detailed below then ComReg will have some visibility of the extent to which the product was developed with respect to Eircom’s non-discrimination obligations.
- 14.63 The information to be sent to ComReg and will include the following:

¹⁶⁸ Regulation 10 (3) provides that that an operator that fails to comply with an imposed obligation of non discrimination commits an offence. Paragraph (4) further provides that it is a defence where to establish that (a) reasonable steps were taken to comply with the relevant obligation, or (b) it was not possible to comply with the relevant obligation.

¹⁶⁹ “Equivalence of Output” or “EoO” means that Eircom shall provide all wholesale access products to Access Seekers in a manner which is comparable or identical to those it provides to itself in terms of functionality and price, albeit potentially using different systems and processes..

- Where differences exist between the wholesale product offering and what Eircom self supplies, Eircom will provide a detailed description of these differences to ComReg with objective justification as to why these differences arise.
- In circumstances where an NGA product cannot be provided on an EoI basis Eircom must provide it on the basis of EoO. Furthermore, Eircom must demonstrate to ComReg why this is the case and that that reasonable steps were taken to provide the NGA product on an EoI basis (i.e. systems and processes).

14.64 This measure is particularly important in terms of ensuring non-discrimination of access. In light of the strategic reform of Eircom Wholesale Business Unit, we view this measure as complementary to achieving non-discrimination. Given that a similar process of prior notification exists for the pricing of products, we consider that this should align with current practices.

14.65 As provided for by Regulation 10 of the Access Regulations, a non-discrimination obligation includes obliging Eircom to ensure that it applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and that it provides services and information to others under the same conditions and of the same quality as it provides for its own services or those of its subsidiaries or partners.

14.66 There may be commercial sensitivity surrounding the provision of information and services, and proposed that it was reasonable to restrict the obligation regarding non-discrimination to the provision of services and information to Access Seekers, rather than to all OAOs. We do not consider it proportionate or justified to expect Eircom to make available commercially sensitive information to all market players, some of whom do not rely on Eircom-supplied WBA inputs to compete.

14.67 In conjunction with the measures stemming from the WPNIA and WBA Market Reviews and other wholesale obligations, including the ComReg Decision D05/11 on KPIs; transparency for next generation services requires Eircom to produce KPIs for these products. This measure should be an extension of the existing process and hence should not pose an additional burden on Eircom.

14.68 To ensure that Access Seekers are in the equivalent position as Eircom and/or its partners, we considered it essential that information and services are provided in sufficient time and on an equal basis.

14.69 We consider that it is justified to set a higher standard of non-discrimination, given the policy of the NGA Recommendation, the European Commission Questionnaire for the Public Consultation on Non-Discrimination and on foot of industry experience as noted in the Competition Problems in Section 3. The most proportionate application of this standard is proposed with acknowledgement of the practical drawbacks that exist for certain current generation operations and systems

14.4.3 Are transparency obligations required?

14.70 Transparency is a necessary means of ensuring that observing price and non-price terms and conditions for next generation WPNIA and WBA products. Non-price transparency applies to areas such as access to information in terms of service provision and service assurance, product development including planning dates, IT system development including planning dates. It may have the potential to impact on the wholesale product set, IT planning, processes and procedures, service delivery and service assurance performance.

14.71 Regulation 9 of the Access Regulations states that transparency may be used in relation to 'interconnection and/or access, requiring operators to make public specified information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, and prices'. The SMP operator would have a natural first mover advantage, if the downstream arm is able to bring product to market at the same time as the upstream arm. It is appropriate to address this advantage through an obligation of adequate transparency and to ensure that competing operators have a reasonable period to prepare for a launch of retail services.

14.72 In the context of NGA, there are two important aspects to the obligation of transparency in terms of supporting other obligations. The first is to ensure that there is adequate transparency regarding the initial launch of new products offered over the NGA network. The second is to ensure that on an on-going basis, access to NGA products and services will be provided in a transparent way and amendments to product design and/or functionality is transparent. To cater for the first situation, we consider that there will be a six months prior notification to industry. Operators will require advanced visibility of network upgrade as such upgrades may have implications for their own network architecture or future demand for access and interconnect. At an operational level, non-price transparency will be required to facilitate and implement the specifics of the principles of non-discrimination and hence ComReg may specify details which need to be published.

- 14.73 Transparency is needed to support accounting separation obligations, particularly to ensure that cost calculations and prices (i.e. internal price transfers) are visible. This would also allow ComReg to monitor compliance with any non-discrimination obligations, and address potential competition problems relating to cross subsidisation, price discrimination and the application of price squeezes.
- 14.74 We propose that Eircom notify industry with information on changes to the ARO and WBARO two months in advance of a retail launch. In order to identify and justify any differences between the services and facilities set out in the ARO and the WBARO and the comparable services and facilities which Eircom provides its own operations. This will ensure that the same information is made available to all market participants at the same time and that alternative operators have sufficient time to prepare internal and strategic plans.
- 14.75 An obligation of non-discrimination needs to be supported by a clear transparency measure. Performance on the obligation of non-discrimination will be greatly enhanced by the prior notification process for new product development and the statement of differences for equivalence. There are clear procedures; the advantage is that Eircom will know what is expected and ComReg issues will become apparent to ComReg in a timely and transparent manner. In particular, this should involve the agreement and publication of a service level agreement. Performance in terms of delivering on the non-discrimination obligation should be made available to industry and ComReg through a set of KPIs, in particular with respect to the supply of access in a fair, reasonable and timely manner. The transparency obligation requires Eircom to make available pertinent information for example on network roll out and product development. Cost and price calculations including reference offers for wholesale products. The publication of KPIs should be developed for next generation products and services allowing publication along with performance metrics.
- 14.76 The transparency measure takes full account of the NGA Recommendation but again we ensure that proportionality is applied and sufficient transparency is given to ComReg and industry that Eircom can fulfil their regulatory obligations

14.4.4 Options on whether price regulation is necessary?

- 14.77 Regulation 13(1), (2) and (3) of the Access Regulations were considered in Section 11 of this document. We also briefly refer to these below.

14.78 Pursuant to Regulation 13(1), where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessive level or may apply a price squeeze to the detriment of end-users, ComReg may impose 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. The WBA and WPNIA market analysis decisions imposed price control obligations at a high level and these obligations are being further specified now in this consultation.

14.79 The two options considered were as follows:

- Price regulation is required
- No price regulation is necessary.

14.80 In summary, an important factor influencing the incentives for Eircom to foreclose third party access, and consequently the rationale for price regulation, is the extent to which the incumbent's behaviour is constrained by alternative platforms, either in the retail market or as alternative suppliers of wholesale inputs. Even when there is no direct competition between different networks (cable versus Eircom's fixed line) at the wholesale level, competition in the retail market could constrain Eircom's wholesale pricing and incentives to offer wholesale services at all.

14.81 Given the discussion at Section 11, we believe that a price control is deemed necessary and we have considered if there are any incentives for Eircom to foreclose downstream rivals. We consider that while the ability of Eircom to overcharge its retail customers (in areas where there is some presence of cable competition — whose offering includes a high speed broadband service) may appear to be limited, the incentive to provide third party access seekers competitive wholesale services on commercial terms together with the incentive to sell wholesale services at preferential prices to those higher up the ladder of investment appears to be weak.

14.82 To date, we have no evidence to justify that Eircom has consistently negotiated reasonable terms and prices with an entrant, absent regulatory intervention. Consequently, we have concluded that there is currently insufficient evidence to indicate that it is in Eircom's interest to provide access on reasonable terms without regulation.

14.83 As described earlier in Section 11 of the main document, where Eircom faces a retail pricing constraint coupled with demand and cost uncertainty, a regulatory pricing structure that allows pricing flexibility seems reasonable. This is discussed further as part of the 'Form of price control' below.

14.84 The main implications of the proposed approach are:

- Future NGA investments have a degree of regulatory certainty; recovery of investment is not constrained by the price control.
- Incumbent is restricted in foreclosing on OAOs via margin squeeze and the OAOs face an ex-ante defined economic space test, which is expected to provide sufficient margin for entry. The margin squeeze test is designed to encourage efficient entry.
- Consumers benefit from increased competition in downstream markets (price, quality and choice).

14.4.5 Options on the form of price control – WBA and WPNIA Markets

14.85 According to Regulation 13(1) of the Access Regulations, ComReg may impose 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.

14.86 The main two forms of price control considered in relation to the NGA products and services were:

- Retail minus (or in this context a retail margin squeeze test).
- Cost orientation (or also referred to as cost plus).

14.87 In assessing the two options we considered that WBA services are likely to be the predominant mode of entry in an NGA context. Neither SLU nor civil engineering access in the WPNIA market has ever been used to any great extent. The proposed virtual access (VUA) product (in the WBA market) is a means to try to counter this difficulty. With regard to WBA we have also considered the potential of a retail price constraint by cable in the retail fixed broadband market as well the potential for a pricing constraint to be exercised by LLU based competition over traditional copper.

14.88 The basis for not adopting a cost orientation obligation in the WBA market to date was to permit entry using the WBA services but to provide an incentive for more infrastructure intensive entry via WPNIA services such as LLU. This is why we consider that a cost orientation obligation may still be relevant for NGA products and services in the WPNIA market, such as civil engineering access.

14.89 Regulation 13(2), which states that to encourage investments by the operator, including in next generation networks, ComReg shall when considering the imposition of obligations in relation to price control and cost accounting take into account the investment made by the operator which ComReg 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. This principle is particularly relevant in the context of the cost orientation obligation that we have proposed for NGA services in the WPNIA market. For now we have not specified the risk premium given that the main roll-out of NGA services will be in the WBA market. However, should the rollout of fibre become more extensive in the context of the WPNIA market we will revisit the area of risk premium.

14.90 These options are assessed further as part of the impact on the stakeholders and also in section 11 of this document.

14.4.6 Options for the principles for the margin squeeze tests

14.91 The following are the main options for determining the appropriate principles for the margin squeeze tests:

- The SEO cost base assumes that entrants are currently not likely to be as efficient as the Incumbent given that they cannot achieve the same scale. A move toward an entire EEO approach may be relevant once the OAOs have achieved sufficient scale to encourage efficient entry.
- The LRAIC plus cost standard allows recovery of the relevant common costs, yet to a lesser extent than ATC.
- The portfolio level, as opposed to the product-by-product basis, of aggregation allows the incumbent the flexibility to efficiently price discriminate on individual products.

14.92 We consider that these proposed principles should provide Eircom with sufficient flexibility in its retail pricing while on the other hand the OAOs have ex-ante defined economic space between NGA products.

14.93 For consumers, this methodology could balance the investment recovery with efficient entry and downstream competition. There may be incremental benefits of price discrimination and flexibility where this promotes more efficient delivery of products and services. Where risk sharing pricing regimes is in place, the lower risk may facilitate a larger NGA investment than the alternatives.

14.4.7 Options for pre-notification and compliance

14.94 In terms of the obligations for pre-notification and for the provision of a statement of compliance we considered the following two options:

- Option 1: Notification of wholesale and retail prices and a provision of a statement of compliance for retail prices only
- Option 2: Notification of prices with a statement of compliance for retail prices with material impact and for all wholesale prices as well as an overall annual review

14.95 Option 1 means continuing with the status quo under ComReg Decision D01/06 in the context of notifications and compliance statements, while the wholesale prices would continue to be pre-notified in line with the general notification obligations as part of the transparency obligation. This would mean that Eircom would be required to provide a statement of compliance for all retail prices. This option would also mean that Eircom would not be required to provide a statement of compliance for wholesale prices.

14.96 Option 2 means that Eircom would be required to pre-notify retail and wholesale prices for NGA and to provide a statement of compliance for all wholesale prices but for retail it would only be required to provide a statement of compliance where it is expected the retail price will have a material impact on the marketplace. In addition, this option would also require that Eircom provides a detailed statement of compliance on an annual basis demonstrating its compliance with the margin squeeze tests contained in the NGA Margin Squeeze Model.

14.4.8 Options for setting migration charges

14.97 For migration charges we have considered a number of options including:

- Option 1: Universal migration charge
- Option 2: Migration charge depending on the stage of investment
- Option 3: Distinct migration charges for current generation and for next generation

14.98 Option 1 means one common or universal charge regardless of whether the migration was between current generation and next generation products and services and regardless of the type of service.

- 14.99 Option 2 means that the migration charge would depend on the stage of the ladder of investment which the operator is on. For example, a distinct migration charge may be applied where the operator is migrating between Bitstream services and another charge where an operator is migrating from Bitstream to LLU or from LLU to VUA.
- 14.100 Option 3 means that the status quo would remain in place for the migration charges for current generation based products and services in the WBA and WPNIA market and that distinct migration charges would be determined for next generation products and services.
- 14.101 The above options are discussed in detail in section 11 and are also discussed below in terms of the potential impact on the stakeholders.

14.5 Determine the likely impacts on stakeholders

- 14.102 This section summarises the impact of the proposed changes on stakeholders. We consider the potential impact that could be incurred by Eircom in complying with the proposed set of obligations as well as the potential benefits that would accrue to Eircom, its wholesale customers, and end users as a result of the obligations being imposed.
- 14.103 The impact of migrating to an NGA network affects a number of defined wholesale and retail markets. Apart from the wholesale infrastructure and access markets of WPNIA and WBA, investment in NGA also impacts Market 1 on the retail narrowband access and calls and Market 2 on wholesale call origination. This underpins the importance and complexity of the decisions being proposed by ComReg and forms part of our assessment in terms of its regulatory impact.
- 14.104 It is clear to ComReg that this is an important step for the market and while the proposed set of regulations aims to balance all the competing challenges, our decisions are taken with a view to ensuring that investment from all operators is facilitated in a timely fashion. It would have a more serious impact for operators and consumers if the evolution to next generation services is hindered.
- 14.105 ComReg is of the view that higher speeds have the potential to benefit all end-users and will allow for the development and availability of a richer range of products and services. ComReg, therefore, wishes to adopt an approach which will assist in creating favourable conditions for the deployment of such technologies while continuing to ensure that operator's ability to compete is not unduly impacted

14.106 The likely impact on stakeholders is addressed in the table below under the following headings:

1. Is access regulation needed?
2. Non-discrimination obligations
3. Transparency obligations
4. Price control
 - Is price regulation needed
 - Form of price control
 - Principles for the margin squeeze test
 - Pre-notification and compliance obligations
 - Migrations.

14.5.1 Is access regulation needed?

Impact on incumbent	Impact on OAOs	Impact on consumers
<p>Eircom could have the incentive and ability to foreclose the market as it weighs up the benefit of excluding the wholesale access seeker from the downstream market. Eircom could anticipate a threat from an entrant which has the potential to innovate and grow its position in the downstream market, at such a crucial stage of market development this threat has the potential to manifest.</p> <p>Future NGA investments have a degree of</p>	<p>Were access to infrastructure not provided, including civil engineering and unbundled access to the fibre loop no other operator would be afforded the opportunity to invest at the lowest rung of the network for NGA services. To take this approach would be to disregard the potential competition problems, the guidance from the NGA Recommendation and most importantly the statutory aims of the Frame Work Regulation.</p> <p>Access based competition is crucial in</p>	<p>The policy objective is to ensure end-user benefit from higher speeds. Consumers benefit from increased competition in terms of price, quality and choice.</p> <p>ComReg is of the view that higher speeds have the potential to benefit all end-users and will allow for the development and availability of a richer range of products and services.</p> <p>Depending on consumer demand, it could be considered that the roll out of NGA to certain</p>

Impact on incumbent	Impact on OAOs	Impact on consumers
<p>regulatory certainty.</p>	<p>an NGA environment and will continue to be facilitated through application of the ladder of investment.</p> <p>Wholesale access on current generation networks, through LLU will continue to be an important driver of competition, even as NGA networks are deployed. The strength of alternative operators for more basic services is important in terms of delivering a full suite of services to end-users and to service the wholesale broadband access market throughout a transition to NGA.</p> <p>Given the policy objective, any operator which is willing to invest in bandwidth enhancing technologies should be facilitated, as long as a fit for purpose NGA wholesale input can be provided in order to service the retail market.</p>	<p>parts of the country could lead to a widening digital divide. Current generation broadband will continue to be available in all areas but those in NGA footprint areas may have greater choice on product and price.</p>

14.5.2 Are non-discrimination obligations needed?

Impact on Incumbent	Impact on OAOs	Impact on consumers
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Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>A non-discrimination obligation includes obliging Eircom to ensure that an obligation of non-discrimination will apply to all NGA services and processes. In particular, a standard of "Equivalence of Inputs" will apply to NGA systems and processes.</p> <p>In circumstances where an obligation of "Equivalence of Inputs" can justifiably not be met, then an obligation of "Equivalence of Outputs" will apply.</p> <p>The analysis required by Eircom in order to determine where EoI or EoO should be applied should not be greater than the burden associated with the existing non-discrimination obligation however the requirement to justify why EoI cannot be offered will require Eircom to prepare a case for ComReg in each instance.</p> <p>There may be commercial sensitivity surrounding the provision of information and services, and proposed that it was</p>	<p>The application of the ex ante non-discrimination obligation seeks to prevent discriminatory behaviour and encourages conditions for competitive dynamics.</p> <p>Vodafone highlighted that the non-discrimination and transparency obligations should ensure the principles of:</p> <p>Equal access to information</p> <p>Equivalent ordering and information system</p> <p>SLAs and associated targets.</p> <p>Measures such as SLAs, KPIs etc assist transparency in terms of delivering equivalence. These standards should be applied to all wholesale products including civil engineering.</p> <p>In general, the consensus from industry has been that greater equivalence is necessary to ensure a level playing field between operators and Eircom's downstream</p>	

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>reasonable to restrict the obligation regarding non-discrimination to the provision of services and information to Access Seekers rather than to all OAOs. We do not consider it proportionate or justified to expect Eircom to make available commercially sensitive information to all market players, some of whom do not rely on Eircom-supplied WBA inputs to compete.</p>	<p>arm.</p> <p>The shift to a fibre network will create an opportunity to deliver higher standards of equivalence to wholesale customers, in particular for processes and information systems which are developed for NGA.</p>	

14.5.3 Are transparency obligations needed

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>The operation of the transparency obligation alone is not adequate in providing a means of ensuring ex ante that Eircom does not discriminate between OAOs and its own internal operation.</p> <p>Prior notification to ComReg will be required for new product development at the initial launch stage and on an ongoing basis.</p> <p>A statement of differences on EoI and EoO will identify differing</p>	<p>Prior notification of new product development will enable OAOs to compete effectively.</p> <p>KPIs enable stakeholders to observe any discriminatory behaviour; they are used as a descriptive measure of the performance of products and indicate the quality and performance achieved.</p> <p>Transparency in terms of service delivery may alleviate suspicions or concerns of unfair</p>	<p>The proposed measures constitute an additional regulatory burden for ComReg, and this would entail both ComReg's support for the development of measures such as KPIs, and the need to ensure implementation and compliance. However, ComReg believes that these measures are essential for the development of the market, and the ultimate benefit of consumers.</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>levels of services and areas for regulatory address.</p> <p>As Eircom will provide this to ComReg after the product development phase and at the time of the product is notified then it would be reasonable that as compliance with the non-discrimination obligation would have required Eircom to analyse the differences between how the wholesale products are consumed by itself and by OAOs that documenting such differences and explaining why EoI is not possible should not be a significant extra burden.</p> <p>Transparency obligation is a necessary means of ensuring that ComReg and OAOs can observe relevant terms and conditions for Eircom's products, thereby ensuring the effectiveness of the proposed access and non-discrimination obligations and bringing the necessary confidence to potential investors.</p> <p>Transparency obligation</p>	<p>practices and ameliorate wholesale relations. It will facilitate the timely delivery of competitive access.</p>	

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>is also required to monitor and ensure the effectiveness of any price control obligations and to support any accounting separation obligations, as this would allow the calculation of costs and prices to be rendered visible. This would also allow us to monitor the compliance of Eircom’s pricing behaviour with any non-discrimination obligations, and address potential competition problems relating to cross subsidisation, price discrimination and the application of price squeezes.</p>		

14.5.4 Price control obligation

A. Is price regulation needed?

Option 1: Price regulation is needed

Impact on incumbent	Impact on OAOs	Impact on consumers
<p>1) Incumbent is restricted in foreclosing on OAOs via margin squeeze.</p> <p>2) Future NGA investments have a degree of regulatory certainty; recovery of investment is not constrained by the price</p>	<p>1) OAOs face an ex-ante defined economic space, which is expected to provide sufficient margin for entry. The margin squeeze test is designed to encourage efficient entry and provide certainty for those that have invested.</p>	<p>1) Consumers benefit from increased competition in downstream markets (price, quality and choice)</p>

Impact on incumbent	Impact on OAOs	Impact on consumers
control.		

Option 2: Price regulation is not necessary i.e. ex-post monitoring

Impact on incumbent	Impact on OAOs	Impact on consumers
<p>1) Eircom would have freedom to negotiate wholesale NGA pricing with OAOs. Whilst still subject to competition law, prices would not be subject to any regulatory pressure and/or uncertainty. Insofar as Eircom would exploit the flexibility by charging high or otherwise discriminatory prices from OAOs, this could result in enhanced returns to Eircom in the medium or long term. Even if OAOs would be, to some extent, foreclosed, Eircom would still be in close competition with UPC.</p>	<p>1) OAOs could face access discrimination subject only to ex-post competition law rulings. For OAOs, the risk in the event of discriminatory conduct is that the ex-post intervention could occur after harm has occurred. In a (still) growing market where customer lifetimes are long and switching costs relatively high, the harm of potential foreclosure would manifest itself over a long period of time—in terms of profits that OAOs would have achieved in the absence of the infringement.</p>	<p>1) Eircom would have more flexibility to compete with UPC in the short term (i.e. it could adjust its pricing without ex ante constraints on economic spaces). However, it is not clear whether Eircom would actually price below UPC’s offerings and to what extent. A relatively large proportion of Eircom’s customer base may not be sensitive to small changes in pricing (to the extent Eircom’s customer base consists of many loyal ‘non-switchers’). Eircom’s incentives to compete fiercely in prices may be diluted insofar as the cohort of customers who are likely to respond to price changes is limited. In the longer term, if the OAOs do not achieve sustainable scale, the retail market may become duopolistic (Eircom and UPC) which in turn may result in consumer harm due to higher prices and lower</p>

Impact on incumbent	Impact on OAOs	Impact on consumers
		quality.

B. Form of price control – WPNIA and WBA Markets

Option 1: Retail margin squeeze (with wholesale margin squeeze tests)

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Eircom is allowed pricing flexibility to set the retail prices. The wholesale prices will be set with reference to outputs of the NGA Margin Squeeze Model. The proposed outputs from the NGA Margin Squeeze Model are based on assumed costs relevant to each of the services. Eircom can price above the outputs so long as the retail margin squeeze test allows it. Eircom cannot price below the proposed outputs without the appropriate adjustment to <i>the SLU</i> access price (<i>and LLU</i> where appropriate) in those NGA Footprint Areas or where changes to underlying assumptions for usage and costs change materially.</p>	<p>1) The margin squeeze tests should be sufficient to ensure that entry is possible at prices that are consistent with the outcome of a competitive process. The upfront cost of offering NGA services is likely to be significant at a retail level to advertise new products and services. There may also be significant upfront costs of customer education/management. Without sufficient margin at the retail level OAO might suffer unsustainable losses as a result.</p>	<p>1) For NGA products and services in the WBA market, this option should encourage NGA competition to the benefit of consumers in the NGA Footprint Areas. It should also ensure that OAOs will move quickly rather than waiting for Eircom to carry out all the necessary migration work up front.</p>
<p>2) In order to avoid a</p>	<p>2) Where Eircom</p>	<p>2) More competitively</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
margin squeeze Eircom can reduce the wholesale prices for NGA services in the NGA Footprint Areas so long as it reduces the SLU price (and the LLU price where appropriate).	decides to reduce the SLU price in order to comply with the margin squeeze model, then the OAOs should benefit from a lower wholesale price in those NGA Footprint areas.	priced products in the marketplace in the NGA Footprint Areas.

Option 2: Cost Orientation

Impact on Incumbent	Impact on OAOs	Impact on consumers
WBA Market		
1) For WBA, this approach may imply significant uncertainties with respect to the assumptions given the cost and demand uncertainty; alternate applications of the cost standard will result in differing wholesale access charges and, by implication, different constraints on the ability to match competitor prices in the retail market. A wholesale access charge that is too low hinders investment recovery and could deter the further investments. A wholesale price that is too high would constrain Eircom particularly where there is alternate platform competition (UPC), provided Eircom	1) For WBA this option could mean that the choice of cost standard and the resulting wholesale price will have implications on entry signals. High wholesale access charges may deter entrants from their initial or expanding investments deeper into the network. Similarly to Eircom, OAOs are also likely to be constrained in the retail market by cross-platform competition. In effect the entire platform including Eircom and OAOs would be constrained by a too high or too low access charge, but more likely a high access price where the alternative platform, for example cable is	1) For WBA, this methodology could hinder NGA competition (and subsequent market outcomes) where wholesale costs are set too high. Welfare benefits that may arise from NGA based products and services could fail to materialise if a cost plus regime deters investment.

Impact on Incumbent	Impact on OAOs	Impact on consumers
still has to comply with the margin squeeze test.	cheaper.	
WPNIA Market		
1) For WPNIA products and services in the context of NGA, it allows Eircom to recover its costs plus a rate of return. It also allows flexibility for potential updates to the Copper Access Model.	1) Promotes more infrastructure intensive entry compared with service based entry in the WBA market.	1) More infrastructure intensive entry should mean more innovative products for consumers.

C. Principles for the margin squeeze tests

Cost base - EEO or SEO?

Option 1: Margin squeeze test is based on an EEO cost base

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) In general, an entire EEO assumption for the margin squeeze test will imply that entrants could achieve similar economies of scale as the Incumbent. EEO is likely to assume lower retail costs for the Eircom so allowing a higher wholesale access charge to be set by Eircom.</p> <p>2) For the incumbent the EEO assumption is likely to reduce competition in the retail market and/or increase its return from</p>	<p>1) An entire EEO cost base would make entry more difficult for entrants, but may incentivise them to invest in their own infrastructure.</p> <p>2) One exception in this context is the margin squeeze test between VUA and SLU where it is proposed to base the costs on an EEO cost base given that that Eircom are currently the only operator providing</p>	<p>1) An entire EEO test is likely to result in (marginally) higher prices and less choice in the long run. It could also result in a duopoly of operators in certain geographic areas as no OAO could compete using Eircom’s network.</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
the supply of wholesale services.	the SLU service and in general the same costs would apply if another SLU operator were to provide it.	

Option 2: Margin squeeze test is based on a SEO cost base

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) The SEO assumes higher costs (compared to EEO) for the incumbent so allowing a lower wholesale access charge to be set by Eircom.</p> <p>2) The SEO should promote competition.</p>	<p>1) The SEO assumes that entrants have not yet gained sufficient economies of scale as the incumbent.</p> <p>2) This approach encourages entry to the market.</p>	<p>1) Likely to result in (marginally) lower prices and more choice, compared to EEO. As competition at the retail level becomes more entrenched it may be possible to move to EEO which may see more price benefits for consumers.</p>

Cost standard: LRAIC plus or ATC?

Option 1: Margin squeeze test is based on 'LRAIC plus'

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Allows Eircom to recover all of its average efficiently incurred directly attributable variable and fixed costs and an apportionment of joint and common costs.</p>	<p>1) The 'LRAIC plus' cost standard allows 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</p>	<p>1) Allows the promotion of sustainable competition by OAOs to the benefit of consumers.</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
	standard.	

Option 2: Margin squeeze test is based on ATC

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) A larger economic space between products 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. Changes to assumptions that limit the incumbent's pricing flexibility are likely to harm Eircom's ability to match retail prices of alternate platform providers.</p> <p>ATC is currently used for legacy Bitstream products under ComReg Decision D01/06.</p>	<p>1) The ATC cost standard 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.</p>	<p>1) Additional competition may reduce prices or improve choice however marginal changes to investment incentives may decrease the size and scope of the NGA network.</p>

Portfolio or product-by-product:

Option 1: Portfolio

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Allows the incumbent flexibility in its retail pricing. This is likely to imply discounting on</p>	<p>1) Can encourage efficiency and promote competition between operators in more</p>	<p>1) Some consumers in intensively competitive areas may be subject to lower retail prices and</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>products where the competition is most intense. This flexibility may mean that the incumbent can price discriminate which may improve efficiency, and under certain conditions, can be welfare maximising.</p>	<p>competitive urban areas.</p>	<p>improved efficiencies.</p>

Option 2: Product-by-product

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Ensures sufficient economic space for each NGA offer.</p>	<p>1) This could enhance entry and competition, particularly for entrants that may lack economies of scope.</p>	<p>1) There may be some gains from improved competition of a product-by-product approach, but these may be offset of a reduction of efficiency.</p>

D. Pre-notification and compliance obligations

Option 1: Notification of wholesale and retail prices and a provision of a statement of compliance for retail prices only (status-quo)

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Given that this option would mean that Eircom could set a revised wholesale price for NGA without a prior provision of a statement of compliance to ComReg this may create issues at a</p>	<p>1) OAOs would have no reassurance that the prices set by Eircom for wholesale NGA services were in compliance with the NGA Margin Squeeze Model.</p>	<p>1) More certainty over retail price levels.</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>later date if Eircom were potentially non-compliant with the margin squeeze model. If this were to happen Eircom may owe monies to operators from the time the non-compliance began. This would create a lot of uncertainty for the marketplace.</p>		

Option 2: Notification of retail and wholesale prices with a statement of compliance for retail prices with material impact and for all wholesale prices as well as an overall annual review

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) This option will place an additional burden on Eircom to provide a statement of compliance for all wholesale prices for NGA. However, there are currently only two main NGA products (NGA Bitstream and VUA) therefore the burden will be somewhat limited given that it only relates to these.</p> <p>2) Eircom are only required to provide a statement of compliance for retail prices that may have a material impact on the marketplace. This reduces the burden on</p>	<p>1) The statement of compliance for all wholesale prices as well as the annual compliance review should give OAOs reassurance and a degree of certainty that the prices set by Eircom are in line with its margin squeeze obligations.</p>	<p>1) Less likelihood of withdrawal of retail services and/or significant changes to prices.</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>Eircom of pre-notifying all retail prices to ComReg in the context of NGA.</p> <p>3) The annual review increases the burden on Eircom to provide a detailed statement of compliance (and supporting information) demonstrating its compliance with the NGA Margin Squeeze Model. However, this provides a regular check that Eircom’s prices are in line with its margin squeeze obligations given the pricing flexibility that Eircom is allowed as part of this draft decision. This annual check should also reduce the likelihood of withdrawal of retail products at a later time, where Eircom would be found to be non-compliant.</p>		

E. Migrations

Option 1: Single migration charge

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Eircom recovers its migration and connection costs (and a rate of</p>	<p>1) OAOs will not be unduly discriminated against on price during the transition whether</p>	<p>1) May lead to more innovative products and more competition at a retail level where OAOs</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>return) in aggregate.</p> <p>2) However, each migration charge may not be cost oriented which arguably may result in economically inefficient pricing signals.</p>	<p>the OAO is migrating between current generation services or to next generation services.</p> <p>2) This option should not act as a barrier to investment for OAOs.</p> <p>3) It may serve to eliminate distortions in OAO behaviour caused by different migration charges for different services</p>	<p>start to invest.</p>

Option 2: Migration charges depending on stage of investment

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) Eircom will recover its costs (and a rate of return) based on the extent of physical activity involved for each of the processes involved for the specific migration.</p>	<p>1) The different charges may dis-incentivise investment by OAOs.</p>	<p>1) Where OAOs are less likely to invest, this may mean less innovative consumer products and less competition.</p>

Option 3: Migration charges depending on current generation and next generation

Impact on Incumbent	Impact on OAOs	Impact on consumers
<p>1) The status-quo would remain in place whereby there is separate migration charges for current generation and next generation</p>	<p>1) The different charges may dis-incentivise investment by OAOs.</p> <p>2) This option is a barrier to investment by OAOs and may in fact dis-</p>	<p>1) Where OAOs are less likely to invest, this may mean less innovative consumer products and less competition.</p>

Impact on Incumbent	Impact on OAOs	Impact on consumers
services.	incentivise infrastructure investment.	

14.6 Determine the likely impacts on competition

- 14.107 ComReg as an NRA has the responsibility to promote competition in the electronic communications markets. Competition drives choice and value for consumers. Our preliminary position on each measure in this paper is to stimulate infrastructure investment or to create a path for services based competition to move up the ladder of investment and this is relevant for the transition to fibre. ComReg is also cognisant of the Digital Agenda for Europe and the targets set across all EU member states towards 2020.
- 14.108 The Digital Agenda for Europe sets targets for the deployment and take up of high-speed broadband, and foresees a number of measures to foster the deployment of NGA based on optical fibre and to support the substantial investments required in the coming years. The NGA Recommendation aims at promoting efficient investment and innovation in new and enhanced infrastructure, taking due account of the risks incurred by all investing undertakings and the need to maintain effective competition, which is an important driver of investment over time.
- 14.109 In the WPNIA and WBA Decisions, we expressed the view that the advent of NGA should not be allowed to lead to a restoration of monopoly conditions over the access network. The conditions of competition are not expected to change appreciably where Eircom overlays or replicates its existing access network with fibre and NGA equipment. It was our preliminary view that Eircom's SMP will prevail across current generation and next generation network infrastructure.
- 14.110 Competition and operational issues are likely to centre on the provision of services and processes rather than the actual products. Thus, products and services must be provided on equivalent conditions. The aim is that this will stimulate better conditions for competition. However, we are mindful of encouraging investment at the deepest layer of the network and of ensuring that the decisions that we mandate today will be sufficiently flexible to facilitate evolving market conditions and demand.

- 14.111 Access-based competition is central in an NGA environment and will continue to be facilitated through and applying the ladder of investment. Wholesale access on current generation networks, through LLU will continue to be an important driver of competition, even as NGA networks are deployed. The ability of operators to continue to compete with current generation broadband services enables the delivering of a full suite of services to end-users and to service the wholesale broadband access market throughout a transition to NGA.
- 14.112 The price control obligations for NGA, in taking account of the current state of competition in certain areas, should encourage initial entry and expansion by competitors wishing to invest in their own infrastructure over time. Access should be at the deepest level of the network where economically feasible, and to allow Access Seekers to differentiate their products to the extent possible where active access is used. At the same time, regulated pricing should facilitate entry by competitors as efficient as the SMP operator which is consistent with encouraging efficient investment.
- 14.113 A further objective is to ensure that operators have the right incentives to use new NGA services as opposed to lagging on existing legacy wholesale access. This requires that the pricing of each of the platforms, which are to some extent parallel, is consistent and does not lead to a margin squeeze within a platform or between two platforms.
- 14.114 We consider that safeguarding efficient competitors from possible below cost selling by an SMP operator in respect of high-speed broadband products helps to facilitate greater regulatory certainty for longer-term competitive entry and expansion, with positive implications for the price, choice and quality of services ultimately delivered to end-users.

14.7 Assess the likely impacts and choose the best option

- 14.115 ComReg has taken account of its obligations under Regulation 8(6) of the Access Regulations (including that any proposed remedies are to be based on the nature of the problem identified), as well as its relevant objectives as set out under section 12 of the Communications Regulation Act 2002 (including the promotion of competition and the interests of end users). ComReg recognises that the European Commission has given guidance to NRAs on the aims and objectives of the future regulation of next generation networks, in its NGA Recommendation. Of primary concern is to ensure that dominance on the PSTN network is not carried over onto the new network and that next generation creates opportunities for all market operators, for the benefit of consumers.

- 14.116 ComReg has provisionally proposed to impose a full suite of regulatory obligations in this market in recognition of the persistent risk of competition problems which have been identified, including Eircom's potential incentive and ability to foreclose the market as it weighs up the benefit of excluding the wholesale access seeker from the downstream market.
- 14.117 Having assessed the potential costs and benefits involved, ComReg considers that the enhancements proposed in the paper are justified, reasonable and proportionate for the following reasons:
- 14.118 The costs incurred in implementing the proposed measures are not considered to be overly burdensome, taking account of the measurements already produced by Eircom in a range of areas for current operational purposes.
- 14.119 The benefits would be substantial by creating an environment in which investment can take place and by ensuring regulatory certainty. Consumer welfare, through price, choice and quality should emerge as the market develops.
- 14.120 The anticipated benefits associated with the proposed changes include a strengthened regulatory and competitive process capable of delivering important pricing and product innovations to end-users. These benefits are considered to exceed the administrative costs involved. Our consideration of the regulatory impact of the proposed measures has taken into account the impact on Eircom and on other stakeholders in the market, and the broader impact on consumers and eventually on competition.
- 14.121 As recognised by Oxera in the Oxera report, there is currently insufficient evidence that it is actually in Eircom's interest to provide access on reasonable terms without any price regulation. However, rather than a stringent cost-based pricing obligation, a margin squeeze-based control would seem more appropriate for the next price control period, primarily because:
- Where NGA is deployed, Eircom is likely to face retail pricing constraints from LLU operators and UPC's cable offerings, which removes the concern that retail prices would be too high. The wholesale prices would be cross-checked with a cost-plus approach to ensure that they are not below (or substantially above) the relevant costs.
 - Monitoring of margin squeeze allows retail (and wholesale) price discrimination, which may be necessary for new services;

- There is some demand uncertainty surrounding NGA investments, although this is limited by the defensive nature of these investments, and the costs of NGA deployment are also unknown to some extent.

14.122 For those main reasons it would seem reasonable and appropriate to apply the margin squeeze test throughout the supply chain—i.e. between retail and wholesale market and between the various wholesale inputs.

14.123 For pricing, we propose to allow Eircom pricing freedom for NGA services in the WBA market to allow it to explore what price levels are appropriate to recover its risk adjusted rate of return empirically. In this draft decision we allow for entry in the WBA Market by reference to a margin squeeze model. The corollary of this approach is that all wholesale prices – including those in the WPNIA market - must be set at a level that ensures users of these services are not squeezed out of the market by excessively low prices at the retail level or in the WBA market. We recognise that this should ensure consistency with Regulation 13(3) of the Access Regulations which states that ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits.

14.124 For NGA products and services in the WPNIA market, we propose to continue with the cost orientation obligation. This approach would take account of Regulation 13(2) of the Access Regulations, where it states that to encourage investments by the operator, including in next generation networks, ComReg shall when considering the imposition of obligations in relation to price control and cost accounting take into account the investment made by the operator which ComReg 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. However, the WBA services are likely to be the predominant mode of entry in an NGA context.

14.125 The WBA products and services, next generation Bitstream (or referred to throughout this section as "NGA Bitstream") and VUA, will be priced by Eircom with reference to a number of margin squeeze tests, which will be based on the "NGA Margin Squeeze Model".

14.126 We are not setting absolute prices as part of this draft decision. The proposed outputs of the NGA Margin Squeeze Model are based on the various cost stacks assumed for each service along the value chain. Eircom will have the flexibility to set the retail prices. Depending on the retail price set, Eircom would determine the wholesale prices in line with the NGA Margin Squeeze Model. However, as Eircom will be subject to a number of margin squeeze tests, it can set the prices for NGA Bitstream and VUA at prices above these outputs where the retail margin squeeze test allows it. However, Eircom cannot price below these outputs without the *appropriate* adjustment to the SLU (and where appropriate to the LLU) access prices in the NGA Footprint Areas or where there is justifiable changes to the assumptions made to the cost stacks in the Margin Squeeze Model.

14.127 This approach can only be justified by the maintenance of copper as a viable form of access in the short term. In the event that a decoupling of copper and fibre based services i.e. LLU and WLR were allowed so as to encourage migration to fibre, a review of the fibre regulatory pricing environment may be necessary to ensure that the underlying wholesale costs are cost oriented. We propose to keep this under review.

14.128 For SLU (and LLU) we propose to introduce a further price ceiling in the NGA Footprint Areas which may be calculated by reference to the price of VUA adjusted for the costs that an entrant operator using SLU would incur to provide VUA. This is derived by the application of the NGA Margin Squeeze Model, which is discussed in Section 11. This should ensure that there is a sufficient economic space between VUA and SLU based on the NGA Margin Squeeze Model.

14.129 In this context we consider that for the SLU monthly rental charges in the NGA Footprint Areas, Eircom may offer the lower of either:

- The maximum charge, as set out in ComReg Decision No D01/10 or as amended based on changes by Eircom to the underlying parameter(s) of the Copper Access Model as set out in ComReg Decision D01/10. This would require a review by ComReg.

or

- The revised charge derived by the application of the margin squeeze test between the VUA monthly charge and the SLU monthly charge based on the NGA Margin Squeeze Model.

14.130 As discussed in section 11 of the document, where the SLU price is reduced then Eircom must ensure price consistency with LLU and amend the LLU price where appropriate using the Copper Access Model in the NGA Footprint Areas.

14.131 The following are the four main margin squeeze test in the context of NGA services in the WBA and WPNIA markets:

- Retail margin squeeze test between a retail standalone broadband and NGA Bitstream (and End-to-end Next Generation Bitstream where it is provided);
- Wholesale margin squeeze test between End-to-end Next Generation Bitstream and NGA Bitstream;
- Wholesale margin squeeze test between NGA Bitstream and VUA;
- Wholesale margin squeeze test between VUA and SLU.

14.132 The following are the proposed principles that we consider should apply to the margin squeeze tests:

- The retail test will be based largely on a SEO cost base with a proposal to use an EEO cost base for advertising costs, an ATC cost standard, DCF model and based on a portfolio of products for the reasons set out at section 11.
- The wholesale margin squeeze test between End-to-end Next Generation Bitstream and NGA Bitstream and between NGA Bitstream to VUA will be based on a SEO cost base and a LRAIC plus cost standard for the reasons set out in section 11.
- The wholesale margin squeeze test between VUA and SLU will be based on an EEO cost base and LRAIC plus cost standard for the reasons set out in section 11.

14.133 In summary, the following pre-notification and compliance obligations will apply in the context of the retail and wholesale margin squeeze tests in the WBA market:

- Eircom will be required to pre-notify ComReg of all new retail prices and changes to existing retail prices for standalone retail broadband products and services in the context of NGA 15 working days before the prices are expected to come into effect. In line with ComReg Decision D01/06, Eircom will also be obliged to provide a statement of compliance. However, we have specified as part of this draft decision that the statement of compliance for retail prices will only be required where the retail price for a new standalone retail BB product for NGA or a change to the existing price(s) is likely to have a material impact on the market place.

- For wholesale products, Eircom will be obliged to pre-notify ComReg of all new wholesale prices and changes to existing wholesale prices for the relevant NGA products and services three months before the wholesale prices come into effect. A statement of compliance will be required for all wholesale prices, be it for a new wholesale product in the context of NGA or a change to an existing wholesale products for NGA.
- Within one year from the effective date of the decision and each year thereafter, Eircom will be required to provide a statement of compliance to ComReg demonstrating its compliance with the retail and wholesale margin squeeze tests in the NGA Margin Squeeze Model. This will include detailed supporting information.

14.134 For migrations, we consider that Eircom will be obliged to offer a single cost oriented migration charge for all current generation and next generation regulated services related to the WPNIA and the WBA market. The migration charges will be based on a universal charge where the likely cost of migrations (including connections where appropriate) for all current generation and next generation products/services in the WBA and WPNIA market over a set period of time would be divided by the likely volume of migrations during this same period, including all retail and wholesale access paths likely to be served by FTTC/FTTH. This option would ensure that during the transition operators migrating between current generation based services are not unduly discriminated against compared with those operators migrating to NGA based products and services. In addition, we consider that this option should not act as a barrier to investment for OAOs. Furthermore, it may serve to eliminate distortions in OAO behaviour caused by different migration charges for different services

14.135 ComReg considers that the further specification of the price control obligation in the WPNIA and WBA markets in the context of NGA meets the six principles of “Better Regulation” for the reasons set out below.

14.136 ComReg considers that the pricing review has been *necessary* for a number of reasons. The previous market analysis for WPNIA and WBA set out high level remedies in terms of the price control in the context of NGA. This consultation process now further specifies the relevant obligations that Eircom should comply with in the context of its NGA rollout and the need for consistency, where appropriate with current generation products and services. In addition, this decision also further specifies the details of the margin squeeze tests that Eircom should comply with. We consider that any decision based on this consultation should provide a reasonable framework for promoting NGA investment and provide regulatory certainty to market players in the context of both current generation and next generation services.

- 14.137 ComReg considers that it has been *effective* in its review by ensuring that the price control remedies further specified in this consultation are consistent with its regulatory objectives. Given the different levels of investment required between the products in the WPNIA and WBA markets, ComReg believes that the pricing measures set should encourage operators onto the ladder of investment, encourage infrastructure investment while promoting sustainable competition in the retail market. This should also ensure consistency with Regulation 13(3)¹⁷⁰ of the Access Regulations. In particular, ComReg determined a retail margin squeeze test and wholesale margin squeeze tests to assess the appropriate economic space between the retail to wholesale products and between the wholesale products in the given markets so as to achieve its objectives. The assessment of the appropriate economic space between the retail and wholesale products and between the wholesale products in the WBA market and from the WBA market to the WPNIA market should ultimately promote retail competition. In time this should promote further wholesale competition as operators gain scale and further invest in their own networks.
- 14.138 ComReg considers that it has been *proportionate* in its review. Given that the main NGA products and services are contained within the WBA market and given that we are proposing to allow Eircom a degree of pricing freedom, subject to margin squeeze obligations, it is considered proportionate to impose a set of regulatory measures in the WBA market which is consistent with our regulatory objectives. It is important that the appropriate regulatory incentives are put in place for market players which should promote investment in NGA where appropriate. Ultimately, our objective is to incentivise more infrastructure intensive investment, rather than reseller models, as this should lead to more innovative products and services and ultimately a more competitive marketplace. We believe that the balanced approach taken on the pricing for WBA should be a step towards achieving those objectives.
- 14.139 ComReg considers that it has been *transparent* in further specifying the price control obligation in the context of NGA in the WPNIA and WBA markets. ComReg published a preliminary consultation in May 2011. Given the advancements since the First NGA Consultation, this consultation process should now allow Eircom, the Industry and other interested parties transparency of the process and the opportunity to provide their views on the proposed methodologies and principles relevant to the NGA products and services in the WPNIA and WBA markets.

¹⁷⁰ ComReg shall ensure that any cost recovery mechanism or pricing methodology serves to promote efficiency and sustainable competition and maximise consumer benefits.

- 14.140 ComReg considers that it has been *accountable* in its review and that it has provided all of the relevant detail, reasoning and information necessary to justify its proposed approach, including an assessment of the likely impact for stakeholders and competition. We have also clearly shown how the proposed measures are linked to our regulatory objectives under Section 12 of the Communications Regulation Act and under Regulation 13 of the Access Regulations. In addition, we have taken into account the NGA Recommendation with clear reasoning where we are deviating from it.
- 14.141 ComReg considers that its review is *consistent* with other pricing reviews where we have imposed a retail minus approach in ComReg Decision D01/06 in the context of legacy products in the WBA market. In addition, we have imposed margin squeeze tests between wholesale products in other wholesale markets e.g. the recent decision on leased lines (ComReg Decision No D02/12). In addition, the proposed tests are also consistent with work completed in other jurisdictions.

Chapter 15

15 Next steps

- 15.1 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 numbers from this document.
- 15.2 The further consultation period will run from 4 April 2012 to 18 May 2012 during which the Commission welcomes written comments on any of the issues raised in this paper.
- 15.3 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 Regulation 13 of the Framework Regulations. Once the response under Regulation 13 is received, ComReg, taking utmost account of any comments received from the European Commission, will adopt and publish the final decision. 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:

- 15.4 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.
- 15.5 As it is ComReg's policy to make all responses available on its web-site 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.
- 15.6 Such Information will be treated subject to the provisions of ComReg's guidelines on the treatment of confidential information as set out in ComReg Document No. 05/24.

Annex: 1 Glossary

<u>Acronym</u>	<u>Full title</u>	<u>Description</u>
Bitstream	Bitstream	A wholesale product provided in the wholesale broadband access market.
BRAS	Broadband Remote Access Server	Equipment for providing access to aggregate bitstream or broadband data-streams
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
Cable	Cable	A system of providing television to consumers 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.
ComReg	Commission for Communications Regulation	National regulatory agency for Ireland
ADSL	Asymmetric Digital Subscriber Line	A variant of DSL. See below definition.
DSL	Digital subscriber line	Digital Subscriber Line technologies which use traditional copper telephony networks to deliver digital broadband signals.
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 that 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.
DOCSIS	Data Over Cable Service Interface Specification	The international standard that allows for the high-speed transfer of data over a cable network.

ECJ	European Court of Justice	
ECTA	European Competitive Telecommunications association	An association which promotes the regulatory interests of European alternative fixed telecoms operators
ERG	European Regulators Group	Established by the European Commission to provide a suitable mechanism for encouraging cooperation and coordination between national regulatory authorities and the Commission, in order to promote the development of the internal market for electronic communications networks and services, and to seek to achieve consistent application, in all Member States, of the provisions set out in the Directives of the new regulatory framework.
Fibre	Fibre Optic Cable	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.
FTTx	Fibre to the ...	Fibre to the x (FTTx) is a generic term used to refer to any broadband network architecture that uses fibre in the access part of the network, including fibre to the home (FTTH), fibre to the building (FTTB), fibre to the cabinet (FTTC), fibre to the node (FTTN), etc.
FWA	Fixed wireless access	The use of radio links for the transmission of voice and data communications
GB	Gigabyte	The abbreviation 'GB' refers to Gigabyte. Digital information storage capacity is often referred to in terms of gigabytes. Gigabytes are used to store large amounts of information (1 GB = 1,024 megabytes). Usage allowance is the amount of data an ISP allows a customer to download/upload each month/week and is generally measured in Gigabytes (GB).
GPON	Gigabit Passive Optical Network	A FTTH architecture and technology in which the access fibre is arranged in a point to multipoint fashion and where the downstream broadband

		signal is broadcast to a defined number of users and each user is allocated a timeslot in turn to transmit their upstream signal
ISP	Internet Service Provider	A commercial entity that offers its customers access to the Internet
Kb	Kilobits per second	The abbreviation 'kb' refers to kilobit per second and is a unit of data transfer rate equal to 1,000 bits per second
LLU	Local loop unbundling	The regulatory process of allowing multiple telecommunications operator's 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 providers network
LS	Line share	Also known as shared access to the Local Loop means the product whereby the high frequency capacity of a line is provided to Other Authorised Operators
LTE	Long Term Evolution	A proposed 4th generation mobile broadband standard, the successor to 3rd generation standards
MB	Megabytes	The abbreviation 'MB' refers to Megabyte and means a unit of data storage capacity equal to one million bytes.
Mb	Megabits per second	The abbreviation 'Mb' refers to megabit per second and is a unit of data transfer rate equal to 1,000,000 bits per second
MDF	Main distribution frames	A signal distribution frame for connecting equipment (inside an exchange) to cables and subscriber carrier equipment (outside an exchange).
MPoP	Metropolitan Point of Presence	Metropolitan Point of Presence or (MPoP) means the point of inter-connection between the access and core networks. It is equivalent to the Main Distribution Frame (MDF) in the case of the copper access network. All NGA subscribers' connections in a given area (usually a town or part of a town) are centralised to the MPoP on an Optical Distribution Frame

		(ODF);
NGN	Next generation networks	The evolution in telecommunication core and access networks that will be deployed over the next 5-10 years. One network transports all information and services (voice, data, and all sorts of media such as video) by encapsulating these into packets
NRA	National regulatory agency	A state or government agency which regulates businesses in the public interest
OAO	Other alternative operators	Operators, other than the incumbent, providing telecommunication services
Ofcom	Office of Communications	National regulatory agency for the United Kingdom
OSI	Open Systems Interconnection	The Open Systems Interconnection (OSI) model was developed by the International Organization for Standardization. It consists of a set of seven "layers" that standardize the functions of a communications system. Each layer defines a different stage in the communications process, in general complexity increases as you move up the layers
OSS	Operational support systems	
Phantoming	Phantoming	Phantoming is a technique which by using a single copper wire as common ground from multiple pairs into a customer premises allows greater bandwidth to be delivered to the end-user than would otherwise be achievable
PSTN	Public switched telephone network	PSTN refers to the international telephone system based on copper wires and carrying analog voice data. This is in contrast to newer telephone networks based on digital technologies such as ISDN
SMP	Significant Market Power	
Satellite	Satellite	Communication that involves the use of an active or passive satellite to extend the range of a communications, radio, television, or other transmitter by returning signals to earth from an

		orbiting satellite.
SLU	Sub loop unbundling	Process by which a sub-section of part of the local loop is unbundled (i.e. The physical circuit connecting the network termination point at the subscriber's premises to the nearest cabinet).
VDSL(2)	Very High Speed DSL	(2 nd Generation) Very High Speed Digital Subscriber Line
WACC	Weighted Average Cost of Capital	The Weighted Average Cost of Capital ("WACC") provides a measure of the appropriate rate of return on capital or investment employed in the production of regulated services
WBA	Wholesale Broadband Access	
WiMax	Worldwide Interoperability for Microwave Access	WiMax is a 4G wireless technology which operates over radio waves.
WPNIA	Wholesale Physical Network Infrastructure Access	Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location, more commonly known as LLU

Annex: 2 Legal Basis

Obligations relating to the market for Wholesale physical network infrastructure access

A 2.1 By ComReg Decision D05/10¹⁷¹, and pursuant to Regulations 25 to 27 of the 2003 Framework Regulations¹⁷² ComReg designated Eircom as having significant market power (“SMP”) on the market for Wholesale physical network infrastructure access (the “WPNIA market”).

A 2.2 The effect of the transitional provisions contained in Regulation 40 of the 2011 Framework Regulations and Regulation 24 of the 2011 Access Regulations is that Decision D05/10 is deemed to continue in force as if it was made pursuant to the 2011 Framework Regulations and the 2011 Access Regulations.

A 2.3 Under Sections 6-18 of the Decision Instrument annexed to Decision D05/10, and pursuant to Regulation 10 to 14 of the 2003 Access Regulations¹⁷³ ComReg imposed obligations on Eircom in respect of Current Generation (Sections 6-12) and Next Generation (Sections 13-18) Wholesale physical network infrastructure access. The following obligations were imposed:

- Obligations to provide access pursuant to Regulation 13 (1) and (2) of the 2003 Access Regulations;
- Conditions attached to the Access Obligations pursuant to Regulation 13 (3) of the 2003 Access Regulations;
- Obligations of non-discrimination pursuant to Regulation 11 of the 2003 Access Regulations;
- Obligations of transparency pursuant to Regulation 10 of the 2003 Access Regulations;
- Obligations of accounting separation pursuant to Regulation 12 of the 2003 Access Regulations; and
- Obligations of relating to price control and cost accounting pursuant to Regulation 14 of the 2003 Access Regulations.

¹⁷¹ Document No.10/39 entitled “Wholesale (Physical) Network Infrastructure Access (Market 4)” dated 20 May 2010.

¹⁷² European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2007 (S.I. No. 271 of 2007), as amended (the “2003 Framework Regulations”).

¹⁷³ European Communities (Electronic Communications Networks and Services) (Access) Regulations 2007 (S.I. No. 373 of 2007), as amended (the “2003 Access Regulations”).

A 2.4 Section 13.1 of the Decision Instrument annexed to Decision D05/10 stated that ComReg was imposing certain SMP obligations on Eircom in respect of Next Generation WPNIA services and facilities and that it would consult further on the detail of certain of those remedies (as set out in Sections 13-18 of the Decision Instrument).

A 2.5 Regulation 18 of the 2011 Access Regulations provides a legal basis for ComReg to issue a direction further specifying the obligation. Also, pursuant to Regulation 8 of the 2011 Access Regulations ComReg is also proposing to amend/[withdraw] certain Current Generation obligations. Specifically, the proposed WPNIA Decision Instrument relates to:

- a) a further specification of the SMP obligations for Next Generation WPNIA which were set out in Part III of the Decision Instrument annexed to ComReg Decision No. D05/10.
- b) [an amendment of section 7.2 (iv) and section 7.2 (v) and associated provisions of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which obliges Eircom to provide access to:- (i) full sub-loop unbundling, combined with GNP where required; and (ii) shared sub-loop unbundling] To note this proposal is subject to consultation.
- c) an amendment of section 7.2 (viii) and associated provisions of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which obliges Eircom to provide access to Ducts.
- d) an amendment of section 12 of Part II of the Decision Instrument annexed to ComReg Decision No. D05/10 which imposes obligations relating to price control and cost accounting, with regard to Current Generation Migrations.
- e) a further specification of:- (i) the SMP obligations set out in section 12.3 and 12.4 of the Decision Instrument annexed to ComReg Decision No. D05/10 which imposed a cost orientation price control obligation on Eircom; (ii) (ii) ComReg Decision No. D01/10; and (iii) section 12.4 of the Decision Instrument annexed to ComReg Decision No. D05/10 which imposed an obligation on Eircom not to cause a margin/price squeeze.

Obligations relating to the market for Wholesale Broadband Access

A 2.6 By ComReg Decision No. D06/11¹⁷⁴, and pursuant to Regulations 25 and 26 of the 2011 Framework Regulations¹⁷⁵, ComReg designated Eircom as having significant market power (“SMP”) on the market for wholesale broadband access (the “WBA” market).

A 2.7 Pursuant to Regulation 8 of the 2011 Access Regulations¹⁷⁶ where an operator has been designated as having a significant market power on a relevant market as a result of a market analysis carried out in accordance with Regulation 27 of the 2011 Framework Regulations, the Regulator shall impose on such operator such obligations set out in Regulation 9 to 13 as appropriate.

A 2.8 Under Sections 6-18 of the Decision Instrument annexed to Decision D06/11, and pursuant to Regulation 9 to 13 of the 2011 Access Regulations ComReg imposed obligations on Eircom in respect of Current Generation (Sections 6-12) and Next Generation (Sections 13-18) Wholesale Broadband Access. The following obligations were imposed:

- Obligations to provide access pursuant to Regulation 12 (1) and (2) of the 2011 Access Regulations;
- Conditions attached to the Access Obligations pursuant to Regulation 12 (3) of the 2011 Access Regulations;
- Obligations of non-discrimination pursuant to Regulation 10 of the 2011 Access Regulations;
- Obligations of transparency pursuant to Regulation 9 of the 2011 Access Regulations;
- Obligations of accounting separation pursuant to Regulation 11 of the 2011 Access Regulations; and
- Obligations of relating to price control and cost accounting pursuant to Regulation 13 of the 2011 Access Regulations.

¹⁷⁴ Document No 11/49 entitled “Response to Consultation and Decision; Market Review: Wholesale Broadband Access” dated 8 July 2011.

¹⁷⁵ European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011) (the “2011 Framework Regulations”).

¹⁷⁶ European Communities (Electronic Communications Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011) (the “2011 Access Regulations”).

A 2.9 Section 13.1 of the Decision Instrument annexed to Decision D06/11 stated that ComReg was imposing certain SMP obligations on Eircom in respect of Next Generation WBA services and facilities and that it would consult further on the detail of certain of those remedies (as set out in Sections 13-18 of the Decision Instrument). Regulation 18 of the 2011 Access Regulations provides a legal basis for ComReg to issue a direction further specifying the obligation. Also, pursuant to Regulation 8 of the 2011 Access Regulations ComReg is also proposing to amend certain Current Generation obligations. Specifically, the proposed WBA Decision Instrument relates to:

- a) an amendment of section 12 of Part II of the Decision Instrument annexed to ComReg Decision No. D06/11 which imposes obligations relating to price control and cost accounting, with regard to Current Generation Migrations.
- b) a further specification of the SMP obligations for Next Generation WBA which were set out in Part III of the Decision Instrument annexed to ComReg Decision No. D06/11.
- c) an amendment of ComReg Decision No. D01/06 in respect of Next Generation WBA.

Consultation Requirements

A 2.10 Regulation 12(3) of the 2011 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 2.11 Regulation 13(3) of the 2011 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: 3 Consultation Questions

- Q. 1 What period is appropriate for the transitional period and why? What issues do you think will occur over this period? Do you think that it will be important to maintain copper services in NGA footprint areas during this time? Please provide reasons for your response. 34
- Q. 2 Do you believe that it is appropriate for ComReg to manage or incentivise a migration from copper to fibre over the transitional period? If so on what basis should ComReg assess the appropriate timing or benchmark for retirement of the copper network? What criteria or trigger should be used? Please provide reasons for your response. 34
- Q. 3 Do you agree with ComReg’s preliminary conclusions on mandating access to civil engineering infrastructure and where reasonable to dark fibre? Do you believe that this approach is necessary, justified and proportionate? Please provide reasons and evidence for your answer..... 57
- Q. 4 Do you agree with ComReg’s preliminary conclusions on network access in the context of FTTH? Please provide reasons for your answer. 60
- Q. 5 Do you agree with ComReg's preliminary conclusions, the Options outlined and related processes with regard to the access obligation for FTTN/C through access to the sub-loop? Please provide reasons for your response. 69
- Q. 6 Do you agree with the general conditions which would apply to all options? Please provide reasons for your response..... 69
- Q. 7 Do you intend to make a request for access to the sub-loop and on what scale? Please provide reasons for your response. 69
- Q. 8 Do you intend to deploy a bandwidth enhancing technology for NGA; if so which options are likely and are there any competitive implications? Please provide reasons, practical justification for your response or any alternative suggestion..... 69
- Q. 9 Do you agree with the ComReg’s analysis for the requirement of Backhaul and exchange and cabinet co-location are required? Please provide reasons for your response. 72
- Q. 10 Do you agree with ComReg's preliminary conclusions in relation to its understanding and assessment of Market 5 obligations? Do you consider that we have considered the necessary access products for Market 5 for NGA. Please provide reasons for your response and approach..... 84
- Q. 11 Do you agree with ComReg’s conclusion on the provision of backhaul services and facilities for WBA? Please provide reasons for your response..... 85

- Q. 12 Do you agree with ComReg's preliminary conclusions, as set out above, on the terms and conditions of the access obligation which are common to WPNIA and WBA? Please provide reasons for your response..... 93
- Q. 13 Do you agree with ComReg's preliminary conclusions, as set out above, in relation to the terms and conditions of the access obligation including a fully functioning migrations process, in the WBA market (Market 5) and WPNIA market (Market 4)? Please provide reasons for your response..... 95
- Q. 14 Do you agree with ComReg's analysis and application of the non-discrimination obligation? In what circumstances should the standard of Equivalence of Inputs or another standard apply? Please give reasoning and evidence to support your position. 111
- Q. 15 Do you agree with ComReg's preliminary conclusions, set out above, regarding the proposed transparency obligation in the context of NGA? Please provide reasons for your response..... 124
- Q. 16 ComReg is interested in operator views on provisioning co-ordination, home-wiring and related matters and in workable methods to support the management of CPE in the NGA context. Please provide your views supported by outline scenarios and proposed solutions where possible..... 127
- Q. 17 Do you accept the Eircom position that the barriers to entry to the retail VoIP market are low based on Eircom's proposed NGA wholesale product set? In particular, are barriers to entry low for those operators currently operating in the WLR or WBA markets? Please provide specific supporting evidence for your answer in terms of entry requirements and likely associated costs..... 128
- Q. 18 Do you agree with ComReg's preliminary views, as set out above, on the price control for products and services in the context of NGA in the WPNIA and WBA markets? Please provide reasons for your response..... 147
- Q. 19 Do you agree with ComReg's preliminary views, as set out above, on the appropriate form of price regulation in the context of NGA in the WPNIA market? Please provide reasons for your response..... 160
- Q. 20 Do you agree whether the underlying network costs of providing NGA based services using SLU are likely to be much lower than the network costs of providing current generation services due to the likely geographic coverage of NGA based services? Please provide reasons for your response..... 160
- Q. 21 Do you believe that the cost base for ducts and trenches should be amended to a HCA basis in the context of mandated civil engineering infrastructure? Please provide reasons for your response..... 160
- Q. 22 Do you believe that the link between copper and fibre based services should be maintained during the transition? Or should migration to fibre be encouraged by way of differential pricing after a certain period of time. If the latter, how long

should this period be and what triggers for a change should be considered?
Please provide reasons for your response..... 160

Q. 23 Do you agree with ComReg's preliminary view that a cost orientation obligation is not deemed appropriate for now in the context of the NGA rollout in the WBA market? Please provide reasons for your response..... 164

Q. 25 Do you agree with ComReg's preliminary views, as set out above, regarding the retail margin squeeze test as well as the pre-notification and statement of compliance obligations in the context of NGA in the WBA market? Please provide reasons for your response. 174

Q. 26 Do you agree with ComReg's preliminary views that "materiality" should mean the lower of either (i) 20% of Eircom's Next Generation retail customer base, in terms of subscriber numbers or (ii) 20,000 new retail subscribers for Eircom's next generation services? Please provide reasons for your response. 174

Q. 27 Do you agree with ComReg's preliminary views, as set out above, regarding the wholesale margin squeeze tests as well as the pre-notification and statement of compliance obligations in the context of NGA in the WBA market? Please provide reasons for your response..... 179

Q. 28 Do you agree with the proposed margin squeeze tests in the WBA market and from the WBA market to the WPNIA market in the context of NGA? Please provide reasons for your response..... 184

Q. 29 Do you agree with ComReg's preliminary views, as set out above, in relation to the principles of the margin squeeze test in the context of NGA, for the retail to wholesale margin squeeze test and the wholesale to wholesale margin squeeze tests? Please provide reasons for your response. 199

Q. 30 Do you agree that Eircom should be required to follow the product-by-product approach, as opposed to the portfolio approach, where the new or existing product is likely to represent at least 20% of the Eircom retail NGA customer base? Please provide reasons for your response. 199

Q. 31 Which option do you consider is the most appropriate in relation to the treatment of WLR/VoIP, in the context of NGA, in the WPNIA and WBA markets over the next three to five years? If there is an alternative option which you consider relevant and which is not discussed above please describe it. Please provide reasons for your response..... 206

Q. 32 Which option do you consider may be appropriate regarding potential co-investment in the context of NGA? Please provide reasons for your response..... 216

Q. 33 Do you believe whether a one-off migration charge or whether the migration costs (including connections where appropriate) should be included as part of the recurring monthly charges for the various products and services in the WBA and WPNIA markets is more appropriate? Please provide reasons for your response.. 223

- Q. 34 Do you agree that a universal migration charge (Option 1) is the most appropriate option for migrations in the WPNIA and WBA markets? Please provide reasons for your response..... 223
- Q. 35 Do you agree with ComReg's preliminary views, as set out above in the table in Figure 11, regarding the retail costs in the context of NGA? Please provide reasons for your response..... 232
- Q. 36 Do you agree that an EEO approach could be applied in the case of some retail cost categories (e.g. advertising), where other large network operators in Ireland are susceptible to similar economies of scope to that of Eircom? Please provide reasons for your response including examples of any specific retail costs that you believe are susceptible to EEO in the context of NGA, with detailed reasons and justification..... 232
- Q. 37 Do you believe that an operator (OAO) can leverage its retail costs e.g. advertising costs from one part of its business i.e. mobile business to another part of its business i.e. fixed broadband business? Please provide reasons for your response. 232
- Q. 38 Do you agree with ComReg's preliminary view that help desk costs for Eircom (retail costs) in the context of NGA should be adjusted for the SEO unit cost scenario? Please provide reasons for your response..... 232
- Q. 39 What do you consider would be the likely estimate of help desk costs during the migration process and post migration process based on an expected level of take up for NGA services? Please provide the details. 232
- Q. 40 Do you agree with the proposed approach taken for determining the IP connectivity costs for NGA services? Please provide reasons for your response... 232
- Q. 41 Do you agree that the cost of modems should be written off over 5 years and the cost of technicians visiting the customer premises should be written off over 20 years in the context of NGA? Please provide reasons for your response. 232
- Q. 42 What do you consider is a reasonable estimate of the likely installation costs involved with NGA services? Please provide the details as part of your response. 232
- Q. 43 What do you consider is a reasonable estimate of the retail costs associated with multicast services? Please provide the details as part of your response. 232
- Q. 44 Do you agree with the proposed approach for determining the cost stack for End-to-end Next Generation Bitstream? Please provide reasons for your response. 233
- Q. 46 Do you agree with the proposed approach for determining the cost stack for NGA Bitstream? Please provide reasons for your response. 238
- Q. 47 What are your views regarding the parameters for determining the relevant costs for a Multicast service. Please provide reasons for your response. 238
- Q. 48 Do you agree with the approach for determining the cost stack for the VUA product in the WBA market? Please provide reasons for your response. 246

- Q. 49 Do you believe that the 95:5 probability weighting factor should be included for determining the costs of VUA? If the 95:5 probability weighting is not relevant to VUA, do you consider that the Copper Access Model should be amended to exclude the 95:5 for LLU also? Please provide reasons for your response. 247
- Q. 50 Do you believe that the price for VUA should increase where Multicast services are provided and if so should the cost for Multicast services be the same as the cost element included for Multicast in the context of NGA Bitstream? Please provide reasons for your response. 247
- Q. 51 Do you believe that the current LLU charge should be revised to include the cost of fault clearance on the current generation access network so as to ensure consistency with the approach proposed by Eircom for the VUA charge? Please provide reasons for your response. 247
- Q. 52 Do you agree with the proposed outputs from the NGA Margin Squeeze Model? Please provide reasons for your response. 250
- Q. 53 Do you agree that the proposed price control period should be for at least three years in the context of NGA services in the WPNIA and WBA markets? Please provide reasons for your response. 252
- Q. 54 Do you believe that the draft text of the proposed Decision Instrument 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. 253
- Q. 55 Do you believe that the draft text of the proposed Decision Instrument 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. 275

Annex: 4 Proposed Outputs of the NGA Margin Squeeze Model

Product	€	Implied price floor	Notes
		€	
SLU price	10.53		Note 1
	↓ plus		
Local Loop E-Side costs	1.09		Note 2 & Note 3
	↓ plus		
VUA costs	8.14		Note 2 & Note 3
VUA Price Floor		19.76	
	↓ plus		
NGA Bitstream costs	3.48		Note 2, Note 3 & Note 4
NGA Bitstream Standalone Price Floor		23.24	
	↓ plus		
End-to-end Next Generation Bitstream costs	0.86		Note 2, Note 3 & Note 4
End-to-end NG Bitstream Standalone Price Floor		24.10	

Notes:

Note 1: This is the maximum price in line with ComReg Decision D01/10. The SLU price is the starting point in the cost stack for the NGA services.

Note 2: These are the proposed costs currently based on the cost inputs and assumptions in the NGA Margin Squeeze Model, which may be subject to change depending on consultation responses.

Note 3: These costs are for standalone broadband only. Where NGA Bitstream is sold with WLR an adjustment will be required to ensure there is no double count of access network costs. As per the above table the common access costs relates to the SLU price input plus the E-side network cost.

Note 4: The proposed costs for next generation Bitstream services are based on a projected peak hour rate for broadband of between approximately 140kbps and 230kbps over the period from 2012 to 2015. However, this may be subject to change depending on peak hour demand for broadband in the future, which may have a knock-on impact on costs and prices.

Annex: 5 Eircom NGA Rollout - announced products

1. Introduction

This Annex provides a brief summary of the Eircom's proposed NGA product suite and corresponding key features of each.

2. List of Products & Variants

1. Bitstream Plus
 - a. Bitstream Plus (Fibre Access) SA and PB (Stand Alone and POTS Based)
 - b. Bitstream Plus (FTTC Access) SA and PB
 - c. Multicast over Bitstream plus

2. VUA (Virtual Unbundled Access)
 - a. VUA over FTTH GPON SA and PB
 - b. VUA over VDSL 2 SA and PB
 - c. Multicast over VUA

3. Bitstream Plus

Bitstream Plus is the product name used by Eircom to describe a new Bitstream service. Traffic will be handed over to an Access Seeker via Eircom's Wholesale Ethernet Interconnect Link (WEIL)¹⁷⁷ service at a limited number of nominated exchanges. The WEIL service can be in the form of either Customer Sited Handover, In-span or In-Building. The service can be broken down into two separate parts: Firstly, the NGN Core; where traffic is transmitted across the Eircom NGN core network to the WEIL and secondly, via the local access to the end user, which will be provided over a number of access methods using both current and next generation access technologies. Eircom has announced¹⁷⁸ that the "current generation" Bitstream Plus footprint will be based on that of the existing Eircom ADSL based BMB (Backhaul Managed Bitstream) service.

The next generation access Bitstream Plus variants will use both FTTH and FTTC access technologies to connect to the end user. The product features common to both current and next generation Bitstream Plus are listed by Eircom in its product description version 0.1 as follows:

¹⁷⁷ WEIL service is also used for handover of NGN Ethernet and VUA (Virtual Unbundled Service)

¹⁷⁸ Bitstream Forum November 2011

- Layer 2 Ethernet-only access - allowing Operators to differentiate their services at the Internet Protocol (IP) Layer and above.
- Connectivity is extended automatically as the available footprint, within a Local Exchange Area, expands.
- Usage-based Unicast Billing based on 95th Percentile bandwidth measurement.^{179,180}
- Multicast Billing based on reserved NGN Core Bandwidth.
- Handover of Ethernet Traffic to Operator using a WEIL.
- Supports multiple, geographically dispersed, handovers, for traffic management and resilience.
- Core services based on a Virtual Private LAN Service (VPLS), for maximum flexibility and scalability.
- Full range of existing WEIL handoffs, i.e. in-building, in-span and customer-sited, supported.
- Operator provides own AAA (Authentication, Authorisation & Accounting).
- Support for traffic-based Class of Service (CoS): (EF) Expedited Forward; (AF) Assured Forward and (Std)Standard (Best Effort)
- Support for Multicast Injection and Replication.
- Multicast Solution supports IGMPv2 and IGMPv3.
- Operators can provide their own VoIP Solution, or use Eircom-provided POTS.
- NGN Core Infrastructure is managed by Eircom to ensure that there is no network congestion.¹⁸¹

a. Wholesale NGA Bitstream Plus

This product is based on two separate next generation access technologies using:

- FTTH GPON (Gigabit Passive Optical Network) technology for the FTTH version of the access portion;
- and VDSL 2 technology for the FTTC version provided via the copper sub-loop from the street cabinet.

¹⁷⁹ Traffic usage from each remote Aggregation Node is sampled periodically. At the end of the month, the top 5% of samples (i.e. those samples showing the highest peak utilisation) are discounted and the sample with the next highest utilisation figure is the billable bandwidth, for that VLAN, for that month.

¹⁸⁰ Usage-based billing does not apply where traffic for the destination WEIL is within the Local Exchange Area for that WEIL.

¹⁸¹ Ongoing capacity management of the handoff WEIL, to ensure sufficient Unicast and Multicast bandwidth, is the responsibility of the Operator.

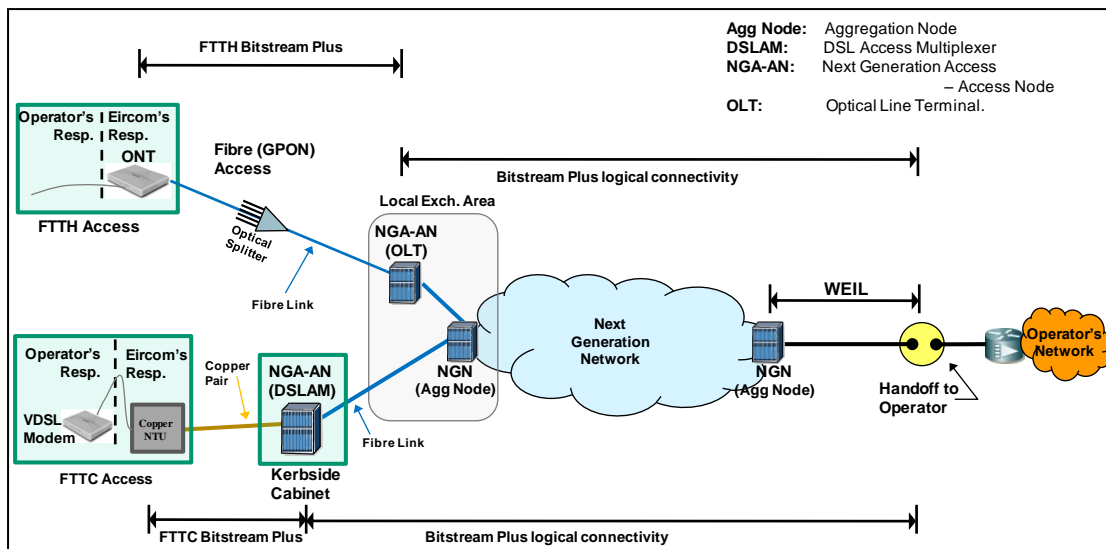


Fig 1. NGA Bitstream Plus

b. NGA Bitstream Plus (FTTH access)

Key additional Product Features of FTTH based Bitstream Plus:

- Allows additional bandwidth for Unicast traffic;
- A single customers port speed is offered, 150Mb/s downstream, 30Mb/s upstream;
- Underlying access technology is “Single-Fibre GPON” with splitter situated in the cabinet, each splitter supporting 32 customers i.e. a 1:32 scheme;
- Presentation at customer premises into which the OAO STP (Set Top Box), or other equipment, connects to the Eircom STP (Service Termination Point) is copper (RJ45) Gigabit Ethernet socket on the Eircom ONT (Optical Network Terminal), shown in Fig.2.

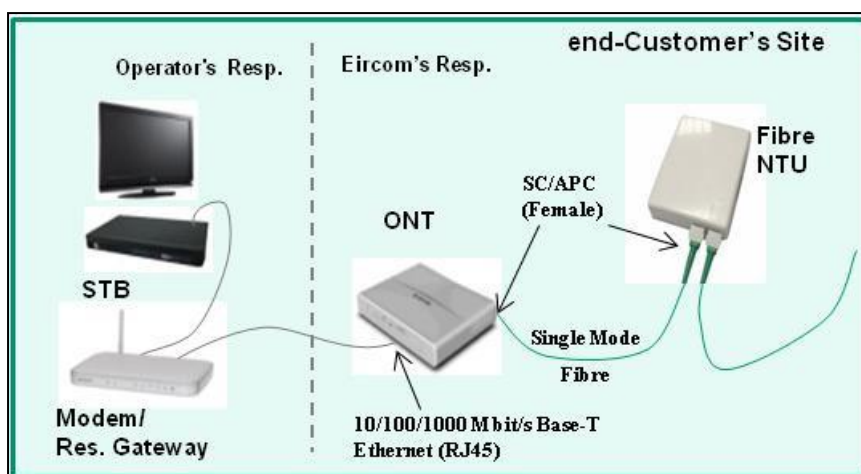


Fig 2. STP (Service Termination Point) for Bitstream Plus Fibre Access

c. NGA Bistream Plus (FTTC Access)

This bitstream service based on VDSL2 access via copper into the customer premises from the DSLAM installed in the street cabinet. Key additional Product Features of NGA FTTC based Bitstream Plus:

- FTTC service is “wires only” i.e. Access Seeking supplies it own modem at the customer premises as with current generation bitstream;
- Unerlying local access is over copper via street cabinet based VDSL 2 technology rather than fibre;
- Speeds up to 50Mb/s downstream and 20Mb/s upstream will be offered for “HSI” (High Speed Internet) variant (Table 1). Both downstream and upstream speeds are rate adaptive;
- Stable/Multicast variant offers a range of lower speeds (Max. 35Mb/s downstream and 16Mb/s upstream speeds available) (Table 1). Downstream speeds are fixed and upstream speeds are rate adaptive;
- Multicast traffic shares available bandiwth with Unicast;
- DSL line profile can be changed by the Access Seeker up to the maximum offered.

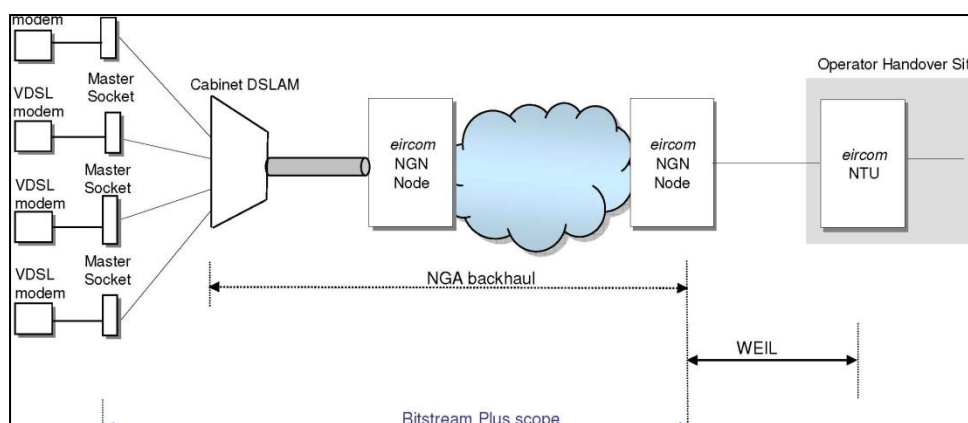


Fig.3 Bitstream Plus FTTC Access

Stable/Multicast		High Speed Internet	
Downstream	Upstream	Downstream	Upstream
35	16	50	20
30	16	45	20
25	15	40	20
20	10	35	15
20	8	30	10
8	7	25	8
		20	7
		18	5

Table 1 NGA Bitstream Plus FTTC profiles

Voice Services

Eircom propose offering wholesale voice POTS services with the NGA Bistream services using existing PSTN platforms. Within the FTTH product, Eircom propose 2 variants: Standalone (SA) which is a pure bitstream product and POTS based (PB), where an existing wholesale telephony service will be provided in parallel on current generation technology. Similarly, the FTTC based service will also have SA and PB versions, with the wholesale PSTN service provided using the current exchange launched Carrier Pre-select (CPS) service.

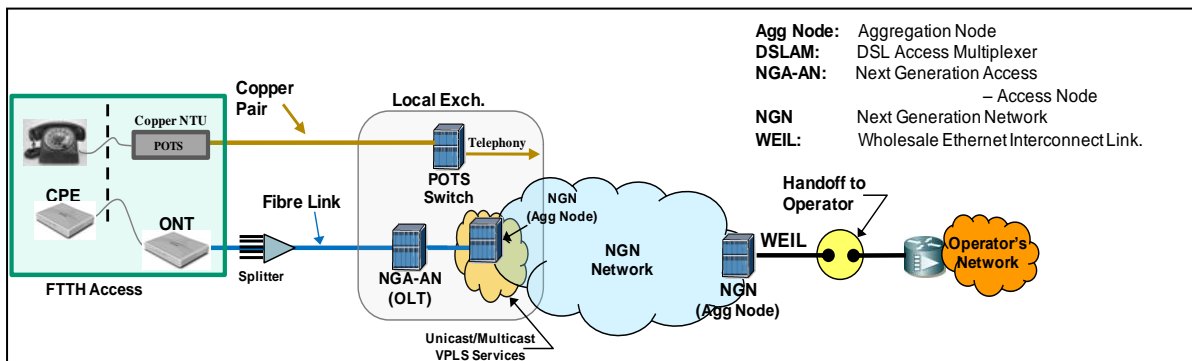


Fig.4 FTTH Bistream Plus POTS-based

The PB version of the NGA Bistream FTTC product will be provided by exchanged launched PSTN via the existing copper which will remain in-situ.

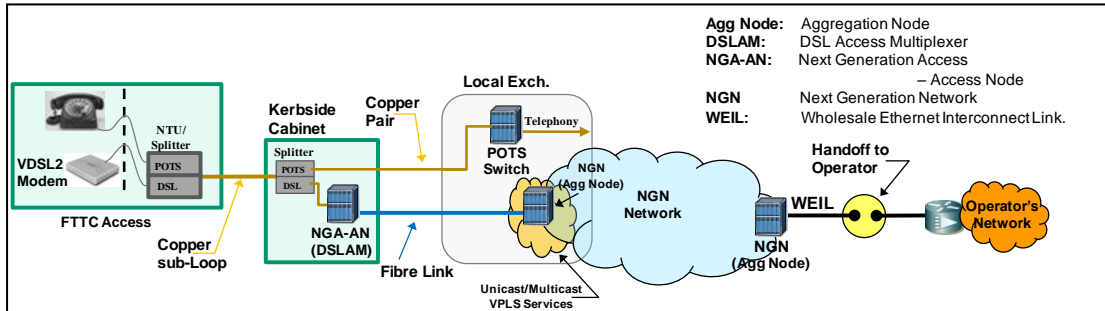


Fig.5 FTTC Bitstream Plus POTS-based

4. Vitrual Unbundled Access

This is a similar product to the NGA Bitstream Plus product described above. The important difference is that an Access Seeker can request a WEIL at any NGN enabled exchange which has an NGN Aggregation Node. It is restricted to handover of traffic of locally connected end-users. VUA local access will use the same FTTC and FTTH technology as Bistream Plus and Eircom has also proposed SA and PB variants for both.

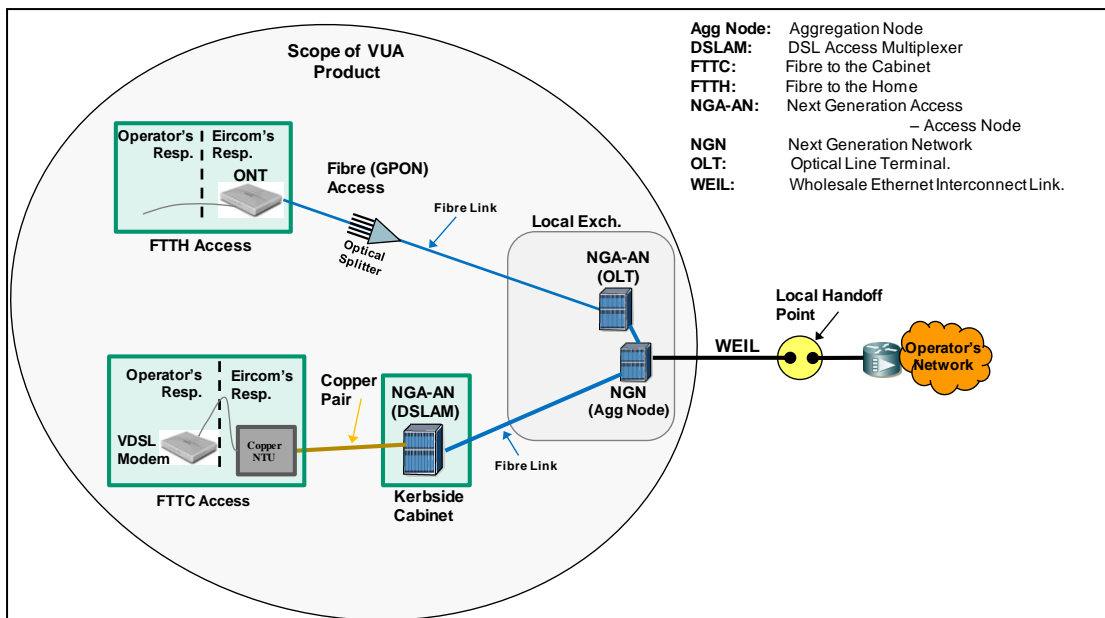


Fig.5 FTTH VUA Products

Eircom has described the “common” VUA products features in its product description Version 0.1:

- Layer 2 Ethernet-only access - allowing Operators to differentiate their services at the Internet Protocol (IP) Layer and above.
- Connectivity is extended automatically as the available footprint, within a Local Exchange Area, expands.
- Local handover of Ethernet Traffic to Operator using a WEIL.
- Core services based on Virtual Private LAN Service (VPLS), for maximum flexibility and scalability.
- Full range of existing WEIL handoffs, i.e. in-building, in-span and customer-sited, supported.
- Operator provides own AAA (Authentication, Authorisation & Accounting).
- Support for traffic-based Class of Service (CoS).
- Support for Multicast Injection and Replication.
- Multicast Solution supports IGMPv2 and IGMPv3.
- Operators can provide their own VoIP Solution, or use Eircom-provided POTS.
- NGN Infrastructure will be managed by Eircom to ensure that there is no network congestion.¹⁸²

The specific VUA FTTH and FTTC feature are the same as those offered in Bitstream Plus equivalent products.

5. Multicast

Eircom intends to offer a multicast service on both NGA Bitstream Plus and VUA products which will support Internet Group Management Protocol (IGMP) Versions 2 and 3.

¹⁸² Ongoing capacity management of the handoff WEIL, to ensure sufficient Unicast and Multicast bandwidth, is the responsibility of the Operator.

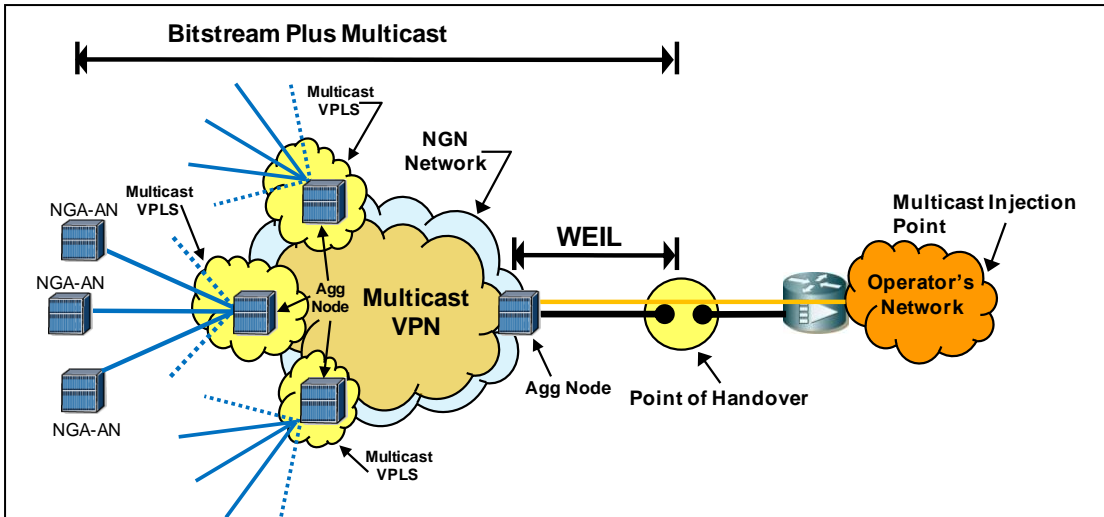


Fig.6 Bitstream Plus Multicast Service

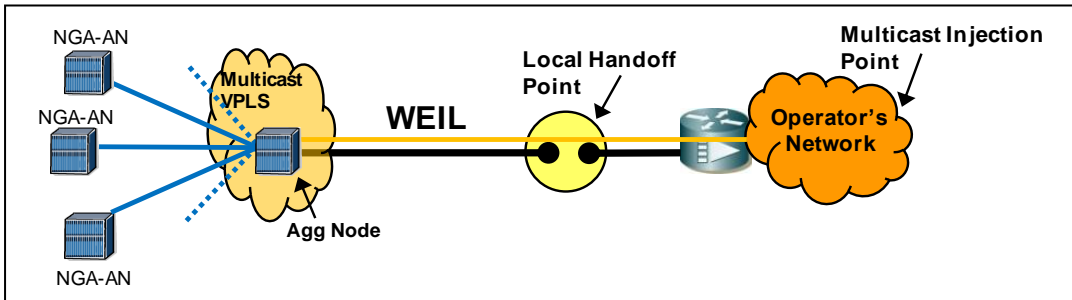


Fig. 7 VUA Multicast handoff to Access Seeker

Annex: 6 Eircom's NGA Pilot products

1. Introduction

This Annex provides a brief summary of the products which were offered by Eircom on its NGA Pilot. The names and details of some of these products have changed, specifically FUA has been superseded by VUA, and others (the unbundled products) have not been incorporated into the initial Phase 1 NGA rollout products offered by Eircom.

2. List of Products & Variants

1. Bitstream Plus
 - a. Bitstream Plus Fibre Access (BPFA)
 - b. Bitstream Plus FTTC Access (BPFCA)
 - c. Multicast
 - a. FUA (Fibre Unbundled Access –now referred to as Virtual Unbundled Access VUA)
 - a. FUA over FTTH GPON
 - b. FUA over VDSL
2. FTTC (Fibre to the Cabinet – Sub loop Unbundled product)
3. FTTH (Fibre to the Home –Fibre unbundled product)

3. Bitstream Plus

3.a Bitstream Plus Fibre Access (BPFA)

This product was based on GPON (Gigabit Passive Optical Network) FTTH technology.

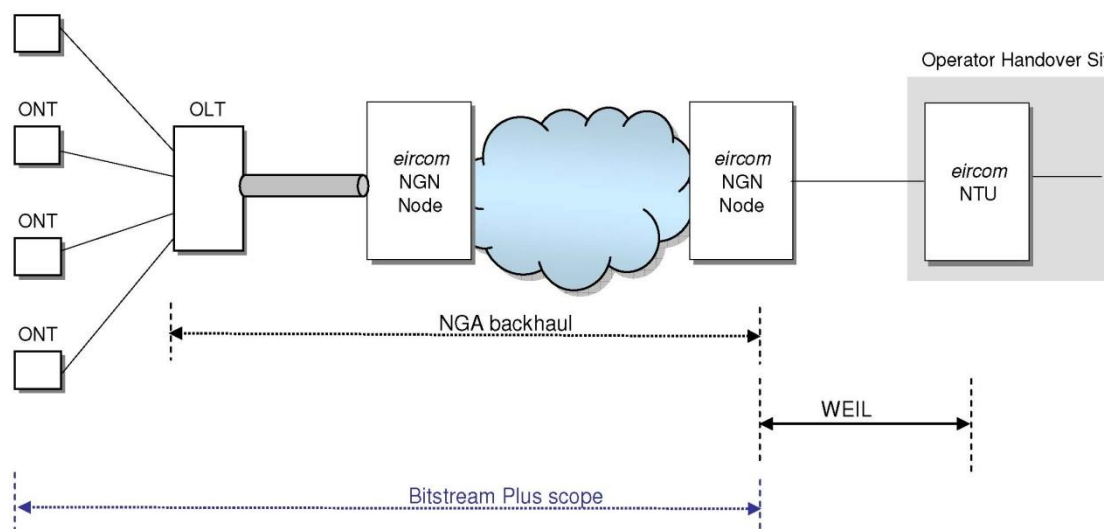


Fig.1 Bitstream Plus Fibre Access

Key Product Features:

- Presentation to OAO was via existing NGN Ethernet interconnection infrastructure: NGN Wholesale Ethernet Interconnection Link (WEIL), 1Gb/s or 10Gb/s currently offered.
- A single customers port speed was offered, 150Mb/s downstream, 30Mb/s upstream.
- Underlying access technology was “Single-Fibre GPON” with splitter situated in the cabinet, each splitter supporting 32 customers i.e. a 1:32 scheme
- 3 Classes of Service (CoS) were offered: (EF) Expedited Forward; (AF) Assured Forward and (Std)Standard (Best Effort)
- Ordering and provisioning were via existing UG
- Presentation at customer premises into which the OAO STP (Set Top Box), or other equipment, connects to the Eircom STP (Service Termination Point) was via a copper (RJ45) Gigabit Ethernet socket on the Eircom ONT (Optical Network Terminal), shown in Fig.2.
- No “wires only” variant offered. (There is currently no international standard for a wires only GPON ONT. This is currently under development and a standard is expected within the next number of years).

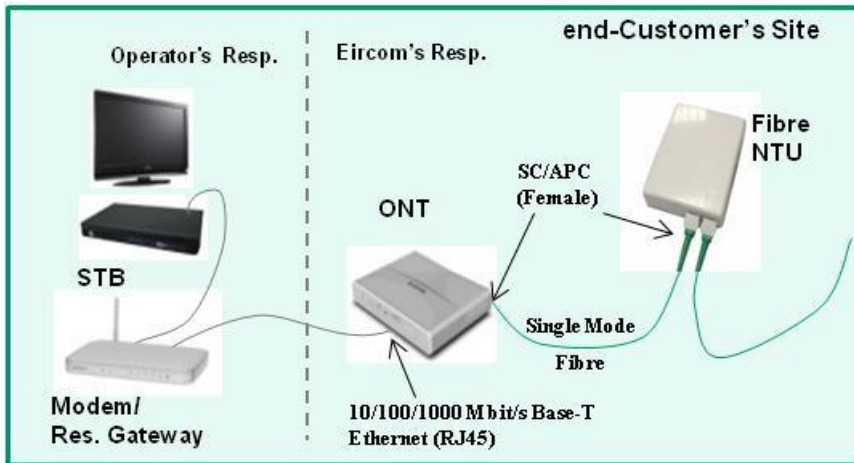


Fig 2. STP (Service Termination Point) for Bitstream Plus Fibre Access

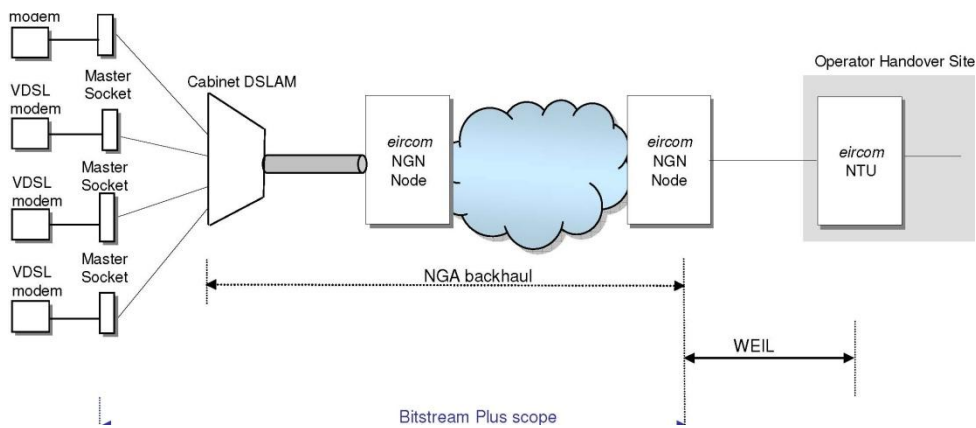


Fig.3 Bitstream Plus FTTC Access

3.b Bisteam Plus FTTC Access (BPFCA)

This was a bitstream service based on VDSL2 access via copper into the customer premises from the DSLAM installed in the closest street cabinet.

Key Product Features:

- Presentation to OAO was over existing NGN Ethernet interconnection infrastructure: NGN Wholesale Ethernet Interconection Link (WEIL), 1Gb/s or 10Gb/s currently offered
- 3 Classes of Service (CoS) were offered: (EF) Expedited Forward; (AF) Assured Forward and (Std)Standard (Best Effort)
- Ordering and provisioning was provided via UG
- Unerlying local access was over copper via street cabinet based VDSL technology rather than fibre

- Speeds up to 50Mb/s downstream and 20Mb/s upstream were offered for “HSI” (High Speed Internet) variant
- HSI variant offered a range of lower speeds (downstream and upstream available) which are distance dependent (Table 1)
- Speeds of up to 35Mb/s downstream (fixed) and 16Mb/s upstream (rate adaptive) were offered for “High Stability (IPTV)” variant (for use with IPTV)
- “High Stability” variant offered a range of lower speeds (downstream and upstream) which are distance dependent (Table 2)
- “High Stability (IPTV) “ variant was designed specifically for the distribution of IPTV

Line Length Max	**Downstream Mbps	**Upstream Mbps
0-300M*	50	20
0-300M*	45	20
300-500M	40	20
500-600M	35	15
600-750M	30	10
750-850M	25	8
850-1000M	20	7
850-100M	18	5

Table 1: High Speed Internet Rate Adaptive VDSL Profiles

Table 2 : High Stability (IPTV) VDSL” profiles

Line length (Max)	Downstream** Mbps (Fixed)	Upstream** Mbps (Rate Adaptive)
0 -300m	35	5 -16
300 -450m	30	5 -16
450 -700m	25	5 -15
700 -800m	20	2.5 -10
800 -900m	20	2.5 -8
900 -1000m	18	2.5 -7

3.c Multicast

Multicast was offered over both FTTH and FTTC infrastructure as per Version 2.0 of the Technical Handbook for Wholesale NGA FTTC Active Products of May 2011.

4. Fibre Unbundled Products

- a. FUA- sub-loop copper variant
- b. FUA –Fibre to the Home variant

This was a “Layer 2” Bitstream offering, similar to the BT “GEA¹⁸³” product. This product delivered dedicated Ethernet streams to and from customers premises to a handoff or interconnection point in the local exchange. The customer access was offered over the VDSL2 copper access infrastructure.

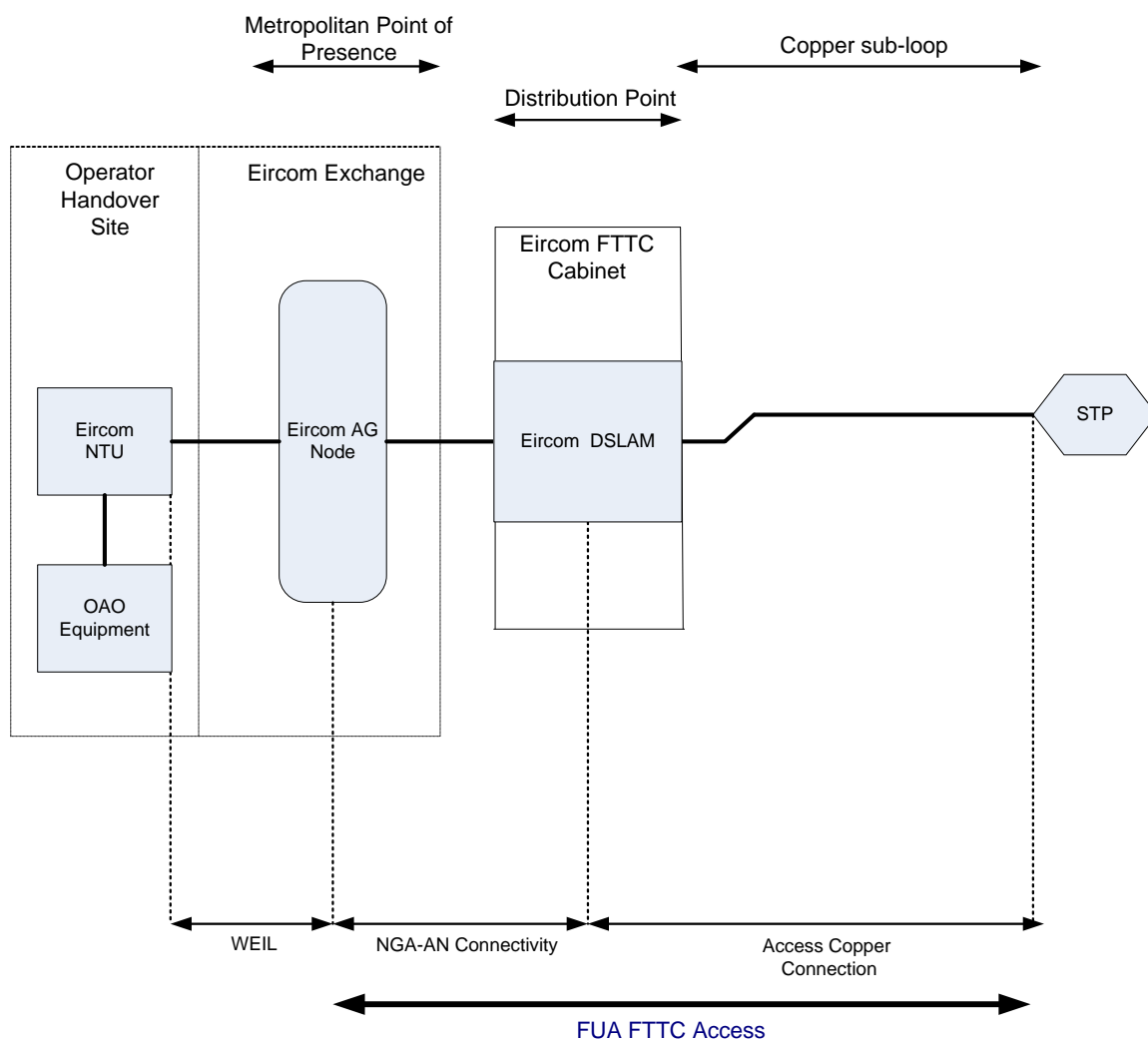


Fig. 4 FUA via FTTC

Key Product Points:

¹⁸³ BT “Gigabit Ethernet Access”

- Handoff or interconnection point was offered at the local exchange only
- For fibre, access speeds offered were 150Mb/s downstream, 30Mb/s upstream
- For copper, maximum access speeds were 50Mb/s downstream, 20Mb/s upstream but will be dependent on sub-loop copper characteristics
- QoS enabled to support video and VoIP services
- “HSI” (High Speed Internet) and “Stable” variants were supported as with Bistream Plus FTTC product
- FTTC variant was a “wires only ” as with Bitstream Plus FTTC Access (BPFCA) product
- Ordering was via UG
- Multicast was also offered over FUA on both fibre and copper variants

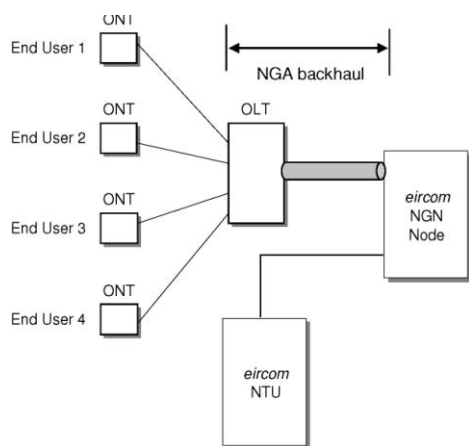


Fig. 4 Fibre Unbundled Access (FTTH version via fibre)

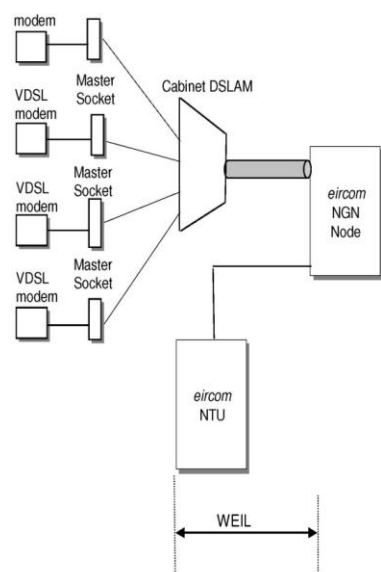


Fig. 5 Fibre Unbundled Access (VDSL variant)

5. FTTC (Fibre To The Cabinet) –Unbundled FTTC Product

The NGA Pilot network architecture outlined above was based on a hybrid fibre/copper access product. The unbundling operator’s equipment is co-located in the exchange (MPoP) and is connected, by fibre, to its DSLAM equipment in a kerbside FTTC cabinet. A copper pair connects customer’s NTU to the distribution frame located within FTTC cabinet. After the fibre connection from the exchange to the cabinet (feeder segment) is completed, the DSL service is ready for enablement when the local access copper pair is jumpered to the copper frame in the street cabinet.

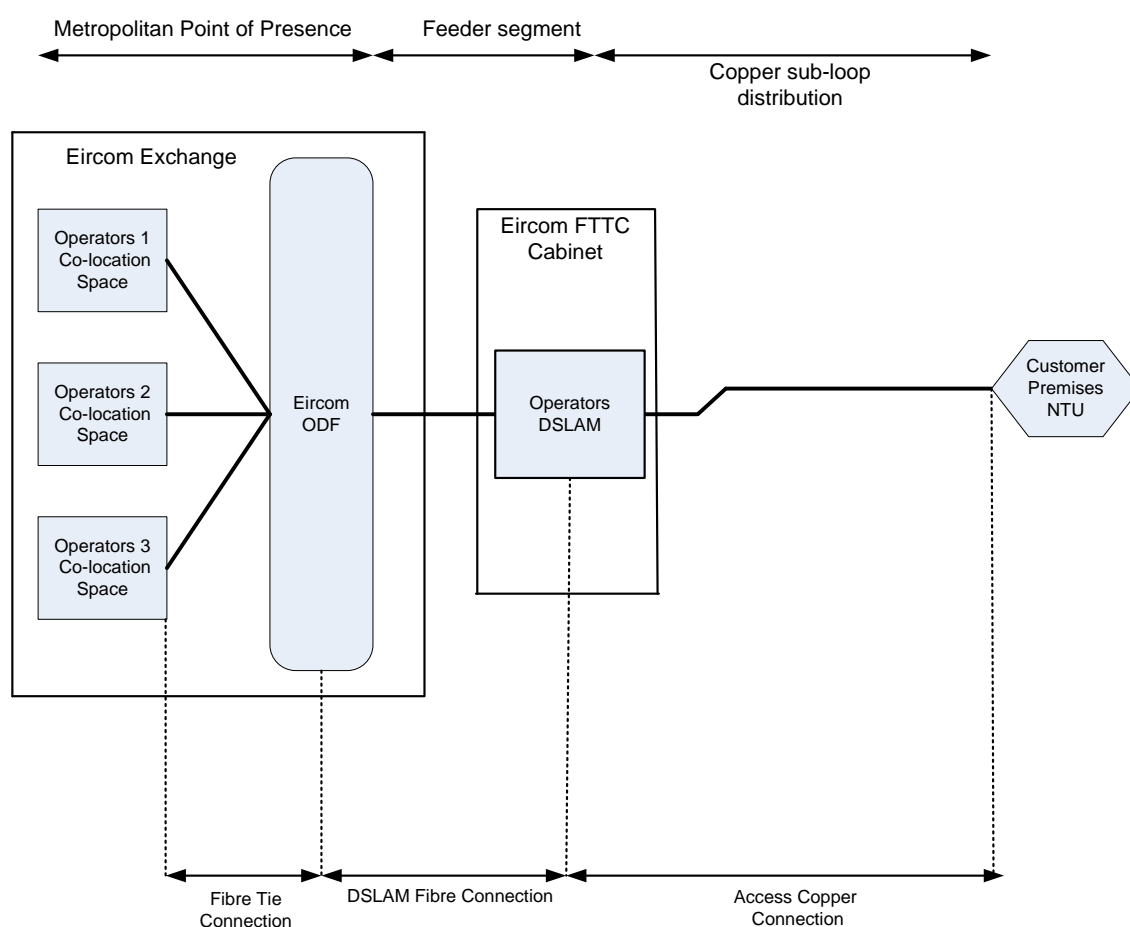


Fig. 6 FTTC Fibre to the cabinet sub-loop unbundled product

Summary of product features:

- Voice service could be long-lined from exchange (PSTN/SB-WLR) -- VDSL splitter in cabinet
- Shared cabinet for OAOs and eircom (5 x DSLAM slots)
- 2 x DSLAM reserved eircom, 3 xDSLAM slots for OAOs.
- Dual DC power with an electricla power limit of 200 watts per DSLAM

- Battery backup provided
- ODF with dark fibres available

6. FTTH (Fibre-To-The-Home) (Unbundled FTTH Product)

The FTTH pilot network architecture outlined in Figure 3 above was based on a point-to-multipoint GPON architecture that connected a retail customer’s Network Termination Unit (NTU) to the unbundling operator’s Optical Line Terminal (OLT) equipment co-located in the eircom exchange (MPoP) via the Optical Distribution Frame (ODF) and a fibre cabinet. Each unbundling operator’s equipment is linked to the ODF with a fibre tie which in turn is linked to the fibre cabinet (the distribution point) with a feeder fibre. The fibre cabinet contains several 1:32 optical splitters, with each unbundling operator having access to one or more dedicated splitters. The NTU in the customer’s premises is connected to a patch panel in the fibre cabinet. The NGA fully unbundled local loop is completed when the fibre from the NTU in the customer’s premises is cross patched/jumpered to the operator’s optical splitter in the cabinet.

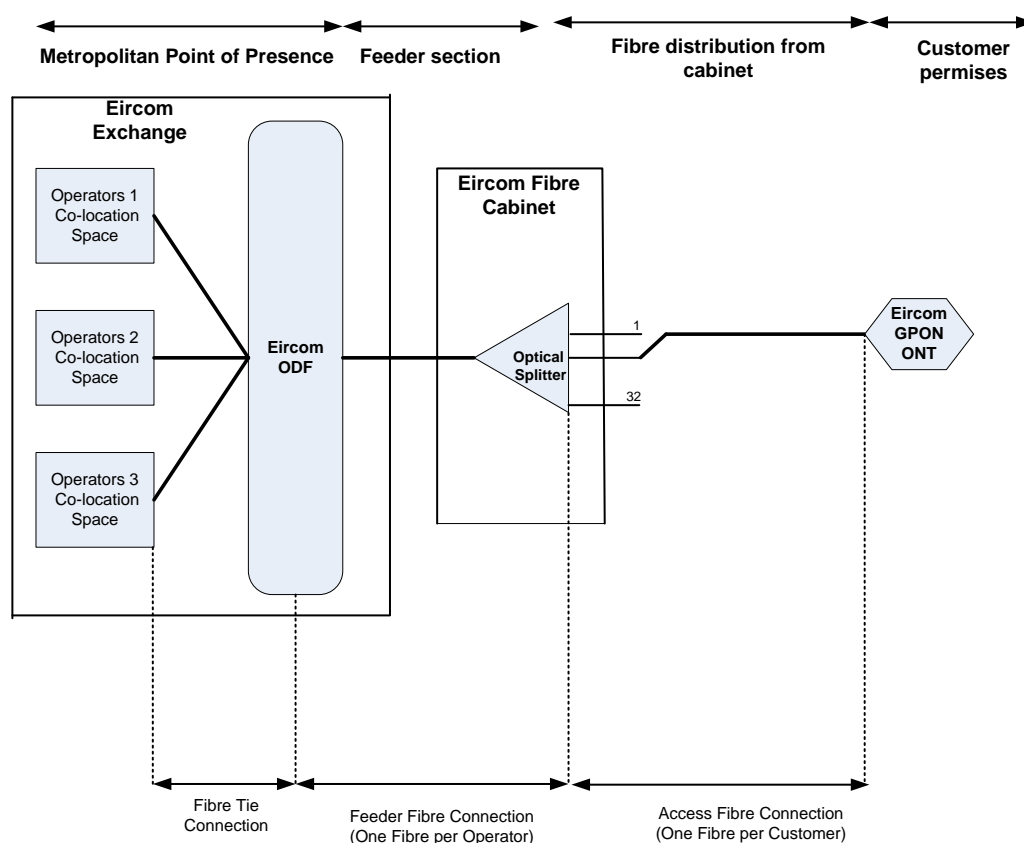


Fig.7 FTTH unbundled product

Summary of product features:

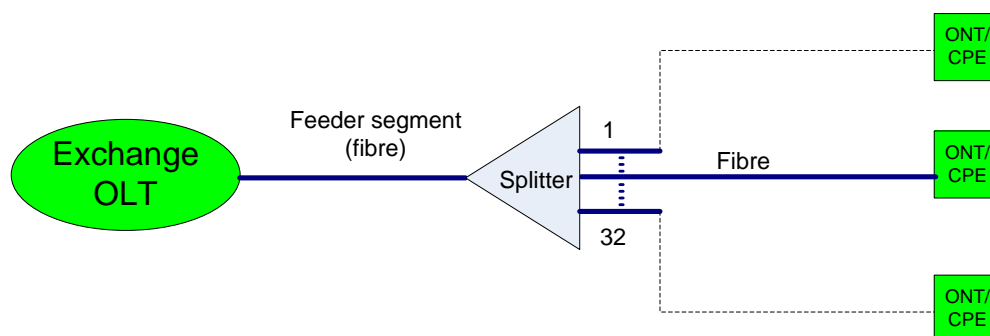
- GPON technology
- Three components: tie cable, backhaul fibre and Fibre access connection
- 32:1 splitter for each OAO in fibre cabinet (splitter located close to customer)
- Product was effectively “parallel GPON” (traditional point to point unndling not available)
- ODF in exchange
- Patch panel in cabinet (flexible solution any-to-any connection)
- Redundant fibre from distribution point to ONT
- Co-location footprint in local exchange

Annex: 7 Point-to-multipoint FTTH based on GPON technology

Gigabit Passive Optical Network (GPON) is a FTTH architecture and technology in which the access fibre is arranged in a point to multipoint fashion and where the downstream broadband signal is broadcast to a defined number of users and each user is allocated a timeslot in turn to transmit their upstream signal.

A GPON network architecture is based on optical line terminating equipment (OLT) in the exchange which broadcasts encoded downstream data, to the Optical Network Termination (ONT) unit in the customer premises, to which the Customer Premises Equipment (CPE) is connected. In this manner service can be provided to a number (from 8 up to 128) of end-users.

A splitter, which is a passive optical device, is used such that a single PON network interface at the OLT in the exchange can be shared by many end users. The CPE decodes the data intended for each subscriber. Using time division multiplexing (TDM), each subscriber's optical network termination (ONT) waits in turn to transmit its upstream data. Therefore the fibre feeder segment between the exchange and the splitter is shared between many end-users.



OLT – Optical Line Termination

ONT – Optical Network Termination

Annex: 8 Oxera Report

Attached separately as ComReg Document No 12/27(a)