



Commission for
Communications Regulation

Consultation

Proposals for Local Loop Unbundling Pricing Methodologies

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All responses to this consultation should be clearly marked:-
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and sent by post, facsimile, e-mail or on-line at www.comreg.ie
(current consultations), to arrive on or before 5.30pm on Friday
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Please note ComReg will publish all respondents submissions
with the Response to this Consultation, subject to the provisions
of ComReg’s guidelines on the treatment of confidential
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Contents

1	Executive Summary	3
2	Introduction.....	5
3	Competing technologies for delivering electronic communications services in Ireland.....	9
4	Methodologies for setting LLU prices: theory and practice	13
5	Possible methodologies for setting LLU prices in Ireland	34
6	Proposed methodologies for setting SLU prices.....	43
7	Overview of the existing Eircom model used to set prices	47
8	Submitting Comments.....	49
9	Appendix A - Regulatory, legislative and policy background	50
10	Appendix B – The ERG Common Position.....	61
11	Appendix C - Brief overview of Eircom’s BU access model.....	69
12	Appendix D – Consultation Questions	71
13	Appendix E – Visual representation of an access network	74
14	Appendix F - Glossary of Terms	75

1 Executive Summary

- 1.1 The Commission for Communications Regulation (“ComReg”) is responsible for the regulation of the electronic communications sector in Ireland. Part of ComReg’s remit is the regulation of unbundled local metallic path (“ULMP”) or local loop unbundling (“LLU”).
- 1.2 LLU is a wholesale service whereby the fixed line incumbent (in Ireland’s case Eircom Limited (“Eircom”)) is required to provide access to its local loop to other fixed operators, known as Other Authorised Operators (“OAOs”). The OAOs can use LLU for the provision of a full range of electronic communications services. The local loop is the physical path, usually copper, which connects a local exchange to an end user. It is the most difficult part of a telecoms network for Eircom’s competitors to replicate economically. Because of this, Eircom is legally obliged by ComReg to allow OAOs to gain access to LLU, in order to allow them to provide electronic communications services to end users.
- 1.3 ComReg has issued a separate consultation on the analysis of this market (ComReg Document No. 08/41 – Market Analysis: Wholesale Unbundled Access). While this document (08/41) is strictly subject to consultation, ComReg has taken due regard to its preliminary conclusions in formulating the proposals in this document.
- 1.4 This consultation document addresses the various pricing methodologies that can be used by ComReg to set the price for LLU. It should be noted that *no* price is being immediately set as a direct result of this consultation. Instead, the responses received in relation to this consultation document will inform a final decision to be made by ComReg, following an intended further consultation that will review the current LLU price and the options for any revised LLU price.
- 1.5 In this consultation document, ComReg examines, in particular, three important issues that inform a choice as to the appropriate pricing methodology that ComReg should use for the purpose of setting a LLU price. These are:
 - Alternative infrastructure
- 1.6 ComReg considers the degree to which account should be taken of the presence of alternative broadband infrastructures to digital subscriber line (“DSL”) and how this should be reconciled with the need to encourage the take up of LLU.
 - Pricing methodologies adopted by EU15 countries
- 1.7 An analysis of the pricing methodologies adopted in the EU15 group of countries indicates that in general, where there are alternative infrastructures to LLU, analytical models are developed. These models replicate the access networks of incumbent operators. They are used by regulators for the purpose of understanding and calculating the costs of an *efficient* operator. An analytical cost model - also known as a Bottom-Up (“BU”) model - is in this context an independent engineering model of a telecommunications access network which is derived using, where possible, data independent of the network operator’s accounts. The costs of construction and operation of the networks would reflect those of an efficient operator. In this consultation document ComReg is seeking the views of interested parties as to whether analytical models are appropriate for use in Ireland.

- Calculation of LLU costs

- 1.8 Because of the economic characteristics of access networks, ComReg is of the view that LLU is unlikely to be economically viable throughout the entire country. In assessing the costs that should be taken in to account in setting a price for LLU, ComReg is proposing to include only the cost of local loops, nationally weighted, by the probability that they will be used for LLU by OAOs in the medium term. It is only economically viable for OAOs to consider certain parts of Eircom's access network for the purposes of deploying LLU. Typically, these might correspond to geographic areas with higher population densities and resulting economies of scale and scope. Remote and less densely populated areas on the other hand, are in general, more likely than not to be economically a much less viable proposition for OAOs. There should however be an overarching principle that OAOs are not required to bear the costs for geographic areas not served by LLU. The price of LLU should reflect the principle that the incumbent should not over recover the costs of LLU from OAOs. In other words, OAOs should only be required to pay for wholesale services that they are likely to use and should not be required to contribute to the cost of providing access lines in areas that they do not intend to serve. ComReg is therefore seeking views – from all interested parties and particularly from OAOs – on the maximum area in which they believe LLU is likely to be availed of in Ireland by OAOs in the medium term.
- 1.9 In this consultation document, ComReg examines the possible options for assessing the cost of LLU. ComReg is also proposing that the appropriate costing methodology should take in to account Eircom's next generation network ("NGN") plans, as well as OAOs' plans with regard to availing of LLU in the future.
- 1.10 ComReg encourages all interested parties to provide their views in writing on the proposals contained in this consultation document. All responses received will be very carefully taken in to account by ComReg. ComReg's decisions in relation to the issues discussed in this consultation document will be published in a final decision. Before that occurs however, it is intended that a further consultation will take place in relation to the implementation and setting of a cost oriented price for LLU. The decisions to be made on foot of this consultation will be incorporated into any final decision in relation to the implementation and setting of a cost oriented price for LLU.

2 Introduction

The importance of LLU

- 2.1 In Ireland, LLU is a wholesale service whereby Eircom (the fixed line incumbent) is legally obliged by ComReg to provide access to its local loop to OAOs. The OAOs can use LLU for the provision of a full range of electronic communications services. The local loop is the physical path, usually copper, which connects a local exchange to an end user. It is the most difficult part of a telecommunications network for Eircom's competitors to replicate economically. Because of this, Eircom is legally obliged by ComReg to allow OAOs to gain access to it, in order to allow them to provide electronic communications services to end users.
- 2.2 LLU allows OAOs to compete with the fixed line incumbent to provide a wide range of services to end users. These services currently include:
 - Retail line rental.
 - Telephony.
 - Broadband.
 - Voice over internet protocol ("VoIP").
 - Video on Demand ("VOD").
 - Internet protocol television ("IPTV").
- 2.3 LLU allows OAOs to compete with the fixed line incumbent, not only on the range of services offered, but also on their price, quality and other differentiating characteristics. There is considerable evidence demonstrating that in many countries where LLU has been a success the take up of broadband has been significant¹. It is ComReg's view that an economically viable LLU proposition has the potential to deliver benefits to consumers in Ireland also.
- 2.4 LLU is important because it enables OAOs to offer broadband services in areas where it is uneconomical to build local loops, or alternative broadband technologies, without being restricted to the rates offered by Eircom's wholesale bitstream products². LLU can stimulate and encourage the development of electronic communication services in Ireland because it allows OAOs greater control over their product specification than when using (for example) Eircom's wholesale broadband (bitstream) products. At the same time, OAOs can leverage the extensive national coverage that Eircom's access network provides.
- 2.5 It must be remembered that LLU has a wider national importance: electronic communication services are essential to the development of the information-based economy in Ireland. It is also generally recognised that an advanced, thriving electronic communications sector, characterised by healthy competition, is highly important for maintaining and enhancing Ireland's international economic competitiveness.

¹ Source: European Competitive Telecommunications Association
http://www.ectportal.com/en/upload/File/Broadband%20Scorecards/Q307/BB_Sc_Q307_prv2.pdf

² Bitstream is a wholesale broadband product which Eircom provides to OAOs.

Associated / variant LLU offerings

- 2.6 In this consultation document ComReg is concerned with LLU and other forms of access closely related to it. Regulation 2 of the European Communities (Electronic Communications Networks and Services) (Access) Regulations 2003 (“the Access Regulations”)³ defines access as follows:

“ “access” means the making available of facilities, services or both facilities and services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis, for the purpose of providing electronic communications services. It covers, *inter alia*, access to network elements and associated facilities, which may involve the connection of equipment, by fixed or non-fixed means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop), access to physical infrastructure including buildings, ducts and masts, access to relevant software systems including operational support systems, access to number translation or systems offering equivalent functionality, access to fixed and mobile networks, in particular for roaming, access to conditional access systems for digital television services, access to virtual network services; access does not include, apply or refer to access by end users;”

- 2.7 Regulation 2 of the Access Regulations also defines the local loop as

“...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”.

- 2.8 LLU is offered to OAOs through three *different* access products provided by Eircom in its Access Reference Offer⁴ (“ARO”):

- *The Line Sharing (“LS”) product.*
- *ULMP or LLU product.*
- *The Sub Loop Unbundling product (“SLU”).*

- 2.9 LS allows OAOs to rent the broadband capacity on a local loop from Eircom, *without taking control of the entire line*. This makes it possible for the OAO availing of LS to provide its subscribers with a broadband service only, while the same subscriber(s) can receive a narrowband voice telephony service from a different OAO or the incumbent.

- 2.10 LLU allows OAOs to take the control of the *entire* line making it possible for them to provide broadband, voice telephony and possibly other services, to their subscribers.

³ Which implements Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (“the Framework Directive”).

⁴ See: <http://www.eircomwholesale.ie/dynamic/pdf/ARO%20Price%20List%20V%203.4.pdf>

- 2.11 SLU allows OAOs to unbundle loops at a street side cabinet, rather than within the local exchange. SLU is potentially important where fibre optic cable is rolled out to these cabinets by Eircom. (Fibre optic cable is sometimes used as an alternative to copper/metal because it is in some respects a superior material for the transmission of signals).

Brief chronology of events to date

- 2.12 The current monthly rental price that Eircom is legally permitted to charge OAOs for LLU is €16.43. This price was set by ComReg Decision D15/04 (“Decision Notice and Direction - Review of Eircom’s ULMP Monthly Rental Charge”). Eircom was directed to amend its ARO on each of 1 December, 2004, 1 December, 2005, 1 December, 2006, and 1 December, 2007.
- 2.13 Appendix A summarises the history of how the price of €14.65 was set using the BU model at that time.
- 2.14 On 27 June 2008 ComReg directed Eircom to set a maximum price of €2.94 for LS for an interim period. Please see ComReg Decision D03/08 (*“Document 08/46 Response to consultation and decision – Rental price for Shared Access to the Unbundled Local Loop.”* It is intended that any decision on foot of this interim review should be superseded by the outcome of the project being addressed in a further consultation on LLU pricing.
- 2.15 In 2005, ComReg initiated an industry forum, which included Eircom and the OAOs, in order to facilitate progress on LLU. Many issues, including the ability to combine and to migrate between the different wholesale products and the number portability with LLU, were largely resolved in 2007. The forum, however, does continue to meet in order to address ongoing issues.
- 2.16 SLU has not been used by OAOs, to date, to any great degree, however this may change in the future with the migration to NGN and future demand for high speed broadband and multiple services over this infrastructure. Accordingly, ComReg also considers SLU in this price review process.
- 2.17 In 2007, ComReg appointed consultants to assist it in developing a revised efficient operator BU model of Eircom’s access network in Ireland. A further work-stream associated with the development of a revised model is the review of the monthly rental charge for SLU.
- 2.18 Eircom currently has significant market power (“SMP”) in the wholesale unbundled access (“WUA”) market as a result of Decision Notice D8/04 (ComReg document 04/70 Designation of SMP and Decision on Obligations – Market Analysis: Wholesale unbundled access). Eircom’s legal obligation of cost orientation in relation to LLU prices and the actual price it charges, result from it being designated as the SMP operator.
- 2.19 As noted previously, ComReg has recently published a consultation in relation to its market analysis of the WUA market (Document No. 08/41: Market Analysis: Wholesale Unbundled Access). If as a result of the market analysis it is found that Eircom does *not* have SMP in the LLU market, or that its obligation of price control should be varied, or removed, ComReg will take this into account when reviewing the current LLU prices. (If Eircom is found not to have SMP, price control obligations will be withdrawn in the appropriate manner).

However, Eircom currently has SMP in the market for WUA. It therefore remains subject to all SMP obligations that have been imposed on it to date, unless ComReg expressly makes a decision to the contrary.

The purpose of this consultation

2.20 The purpose of this consultation is to review the methodology used for setting the price of LLU and SLU and to obtain the views of all interested parties on an approach proposed to be used in the next price review which ComReg intends to consult on later in 2008. This consultation is intended to inform the development of an improved BU model to be used as the basis for obtaining appropriate LLU/SLU prices and the appropriate methodology that ComReg might use when setting these regulated prices.

2.21 This consultation document, examines amongst other things, the following issues:

- *The theory and practice for the different methodologies in setting LLU prices.*
- *A proposed methodology for setting LLU prices in Ireland.*
- *The proposed methodology for SLU prices in Ireland.*

2.22 This consultation also takes account of changes in the Irish telecommunications market and the latest available cost data. During the preparation of this consultation, ComReg has held discussions with Eircom, UPC, fixed wireless operators, mobile operators and other alternative fixed line operators, in order to obtain their points of view on the access market and where possible, to obtain data from them about the costs of the local loop. ComReg has also taken account of:

- *The most recent work on LLU pricing in the EU15 countries.*
- *The most recent work in France and the UK, which have both recently considered changes in LLU costing methodology.*
- *The “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” (“the ERG Common Position”).*
- *The judgment of the European Court of Justice (“the ECJ”) delivered on 24 April, 2008 in Case C-55/06 Arcor AG & Co. KG v Federal Republic of Germany on 24 April, 2008 in relation to LLU pricing (referred to throughout the remainder of this document as “Arcor”).*

2.23 The responses received from interested parties to this consultation will inform ComReg’s deliberations with regard to the appropriate methodology for the development of the improved BU model. The conclusions arising from this consultation process will be a key element in the appropriate approach to the setting any LLU prices in substitution of current prices.

3 Competing technologies for delivering electronic communications services in Ireland

- 3.1 ***Pricing policy in relation to LLU should balance the need to encourage the use of LLU, allow a rate of return for the incumbent, and to take account of any independent platform based competition. The following section assesses the importance of independent platform competition in Ireland.***

Overview

- 3.2 Choosing the appropriate method for LLU pricing will need to reflect local conditions. Account will need to be taken of local demographics, the economic conditions prevailing and also the presence or absence of various means of competing platforms. Therefore, while ComReg reviews the experience of other EU countries in this consultation document, the most appropriate LLU pricing method may differ between countries.
- 3.3 The level of LLU prices has an impact on the *wider telecommunication market* as it may modify the competitive environment of the fixed line operators. The ability to provide broadband is one of the most significant attributes of LLU - notwithstanding the fact that it can also be used to provide voice telephony services.
- 3.4 Firstly, there are currently three main options for OAOs to provide broadband services using DSL:
- To use Eircom's bitstream product(s); or
 - To use LLU from Eircom; or
 - To use bitstream products from another unbundled OAO.
- 3.5 The relative level of prices as between bitstream and LLU can affect an OAO's decision on whether or not to take up LLU at an Eircom exchange. Where the prices of LLU are *high* compared to bitstream, OAOs are more likely than not to avail of LLU at only a small number of exchanges and to use bitstream elsewhere. Where the prices of LLU are *low* compared to bitstream, OAOs might prefer to avail of LLU at more exchanges. The prices of LLU, therefore, have a direct impact on the relative take up levels of bitstream and LLU.
- 3.6 Secondly, the level of LLU prices affects the strategy of operators who use alternative infrastructures (i.e. cable, fixed wireless access ("FWA") fibre, etc.). If the level of LLU prices is very low, there is a risk that the competitiveness of these operators based on alternative infrastructures could be unfairly impacted, as would their incentives to invest in alternative technologies. In contrast, a high LLU price would deter the take-up of LLU and increase the risk of inefficient duplication of infrastructure.
- 3.7 While mobile broadband has been a successful sales channel for the mobile companies over the past year, ComReg are of the preliminary opinion as set out in section 3 of ComReg Document No. 08/41 – *Market Analysis: Wholesale Unbundled Access*, that mobile broadband is not a substitute for fixed line broadband at this time and it is not expected to be over the medium term. However

ComReg will keep this under review and should any material developments in this area occur this may be taken into consideration when calculating LLU prices.

Alternative Infrastructure Providers in Ireland

Cable

- 3.8 Since the merger of the two main cable networks in Ireland (Chorus and NTL), UPC is now the most significant cable broadband operator in Ireland. Its network in Ireland is widespread, reaching 85% of the households i.e. 1.2 million links. However 40% of these links are provided through Multichannel Multipoint Distribution Service (MMDS or wireless cable), which is not able to provide a two-way broadband service. The company plans to invest €300 million to upgrade its wired network. The objective is to be able to provide broadband and digital services everywhere in the UPC network⁵. According to UPC, in recent media reports, the number of households able to use broadband over their cable TV network in the near future will be approximately 745,000.

Fixed Wireless Access

- 3.9 Currently, there are 224 Fixed Wireless Access Local Area (“FWALA”) licences issued to 15 operators in the 3.5 GHz, 10.5 GHz and 26 GHz bands⁶. FWA operators have mainly deployed their network in dense urban areas using channels A, B, C and D. To increase the flexibility of the licences, ComReg introduced the Geographical Service Areas which authorised the provision of FWALA services in areas previously unauthorised, where two or more licences held by the same licensee overlap on the same channel, and the area in question is too small to facilitate a standard FWALA frequency assignment to another licensee⁷. ComReg will make available 5 additional channels for FWALA licensing later this year⁸. The coverage of FWALA is very large in terms of territory and also in terms of population (major cities are covered) as is shown in Figure 1.

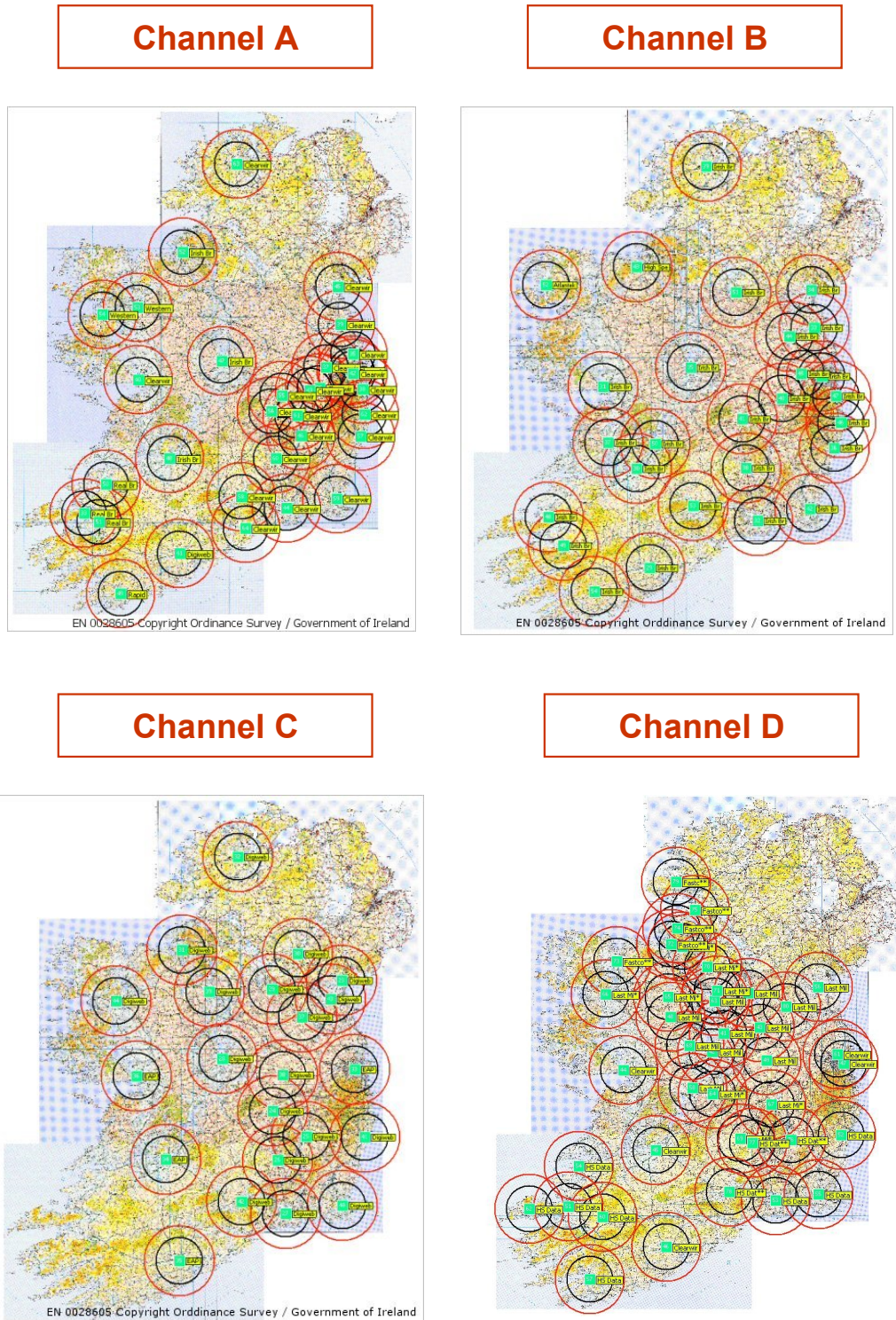
⁵ Source: UPC website. <http://www.upc.ie/>

⁶ www.comreg.ie/radio_spectrum/search.541.874.rslicensing.html

⁷ ComReg, Response to Consultation No. 07/72 – FWALA Geographical Service Areas (GSAs)
http://www.comreg.ie/publications/fwala_geographical_service_area_gsas_-_response_to_consultation.583.102764.p.html

⁸ ComReg, Consultation No. 07/42 – Reservation of spectrum for the National Broadband Scheme.
http://www.comreg.ie/_fileupload/publications/ComReg0742.pdf

Figure 1: FWA coverage at the end of 2007 (coverage is represented by circles)

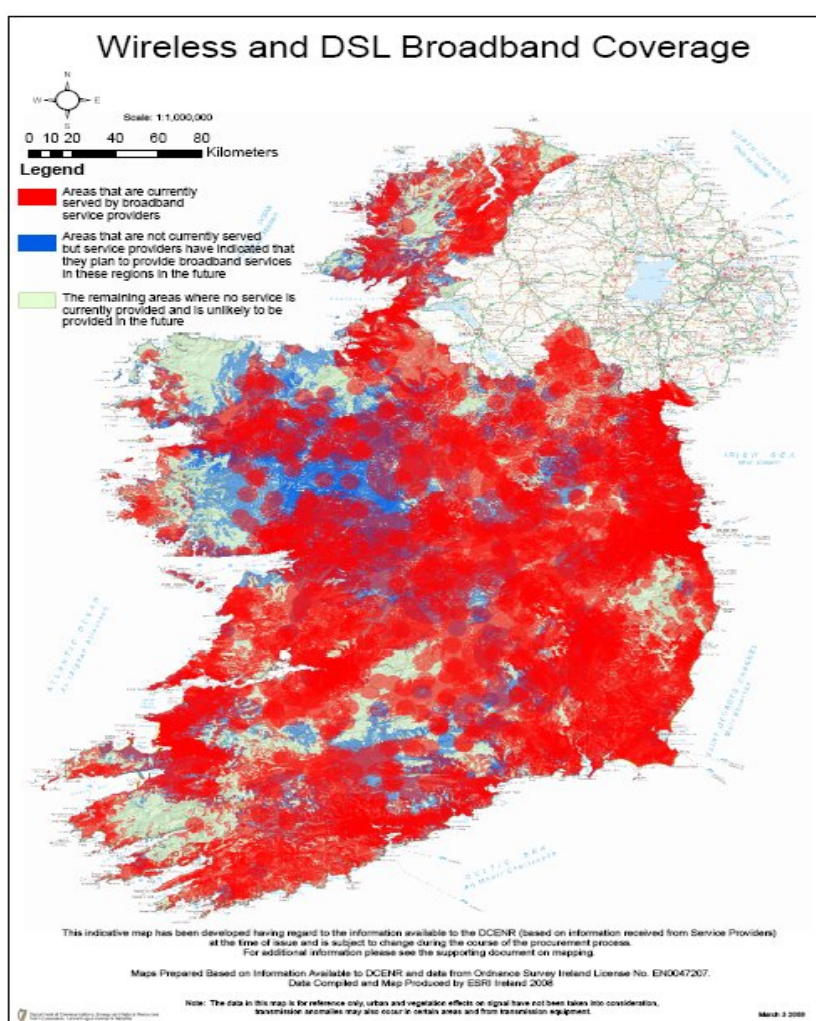


Source: ComReg – http://www.comreg.ie/radio_spectrum/search.541.874.rslicensing.html

National Broadband Scheme

3.10 Notwithstanding the general availability of broadband services in the market, there are areas of the country where it is unlikely that broadband services will ever be economic. The Department of Communications, Energy and Natural Resources (“the DCENR”) is now seeking to address this broadband deficit through the National Broadband Scheme (“the NBS”)⁹ which aims to bring broadband to these areas. Figure 2 shows an indicative map prepared by the DCENR which highlights the geographic areas that are served with broadband as well as those which are likely to come within the scope of the NBS. The NBS is a technology neutral scheme. ComReg understands that the minimum product requirements being sought through the tender process being conducted by the DCENR are for a 1Mbit download and 128kbit upload, 10GB download allowance, maximum contention at 48:1, plus the capability to support VPN/VoIP.

Figure 2 – NBS coverage



Source: Department of Communications, Energy and Natural Resources.

⁹ See DCENR website for details

4 Methodologies for setting LLU prices: theory and practice

- 4.1 *When SMP operators have obligations to offer cost oriented prices for access to LLU by competing operators, regulators can use different means to set cost oriented prices. This chapter examines the different models and cost accounting methodologies that can be used and compares their use across 15 EU member states. ComReg’s preliminary conclusion from this is that BU-LRAIC would be the most appropriate cost accounting methodology for Ireland at this time.*

Possible methodologies that can be used for the setting of cost oriented LLU prices

- 4.2 In Ireland, the price that Eircom charges for access to LLU is legally required to be cost oriented¹⁰. The current price of LLU is a monthly price per unbundled line that covers the asset costs of the local loop, its operating costs and some other costs (some common and joint costs). The basic formula for calculating the LLU price is given in Figure 3.

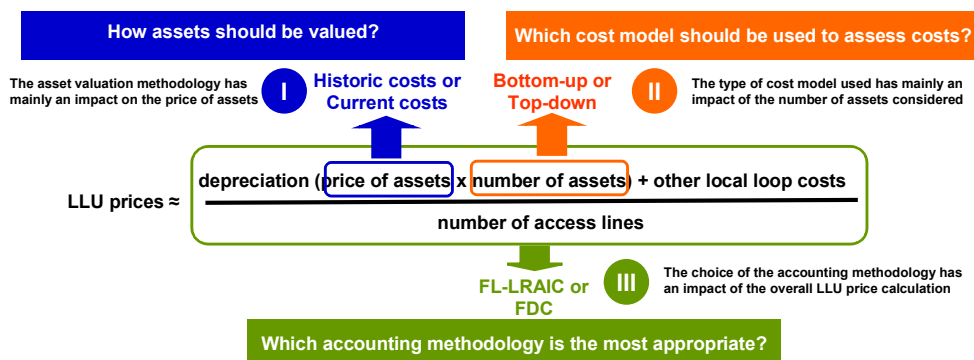
Figure 3: The calculation of the cost oriented LLU price

$$\text{LLU prices} = \frac{\text{depreciation (price of assets x number of assets) + other local loop costs}}{\text{number of access lines}}$$

- 4.3 This formula raises three key questions:
- (i) How should assets be valued?
 - (ii) Which type of cost model should be used to assess costs (e.g. Top Down (“TD”) / Bottom UP (“BU”))?
 - (iii) Which accounting methodology is the most appropriate (e.g. Fully Distributed Costs (“FDC”) / Forward Looking Long Run Average Incremental Costs (“FL-LRAIC”))?
- 4.4 Regulators in the EU must answer these three key questions in order to determine the most appropriate methodology for setting cost oriented LLU prices. Figure 4 relates these questions to the formula:

¹⁰ See section 9 of ComReg Decision No. D8/04 “Designation of SMP and Decision on obligations: Market Analysis: Wholesale unbundled access (including shared access) to metallic loops and sub loops”, dated 15 June, 2004” (hereinafter “ComReg Decision No. D8/04”).

Figure 4: The 3 key questions to choose a methodology for the setting of cost oriented LLU prices



Source: TERA Consultants

How should assets be valued?

4.5 Asset costs such as equipment, cables, ducts and poles are normally the major costs of the local loop. These assets can be valued in two alternative ways:

- Using **historic costs** obtained from the incumbents' accounting information. This is based on actual costs which have been incurred.
- Using **current costs** which can differ significantly from the historic costs because of price changes and technological progress. For example, the price of property and the cost of trenches are likely to have increased significantly in the last decade and the current costs for the local loop may be higher than the historic costs.

What type of cost model should be used to assess costs?

4.6 Two alternative methodologies may be used:

- A **TD** model. This takes data directly from the accounting system of the local loop operator.
- A **BU** model. This is an analytical model that calculates the cost for an efficient operator to “rebuild” the local access network. BU models can be designed following two different approaches:
 - (i) The “**scorched node**” approach: this takes as a starting point the nodes of the existing local loop operator such as Main Distribution Frames (“MDFs”); and
 - (ii) The “**scorched earth**” approach: this models the local loop without any constraints from the existing nodes of the local loop operator.

- 4.7 A BU model also looks at the costs required, over a given time period, to build an access network from scratch without any legacy issues. It utilises up to date capital, engineering rules and operating costs.
- 4.8 The choice between these two approaches affects the level and quantity of equipment used. The BU model should calculate the costs of an efficient operator because the level and type of equipment and their characteristics are matched to demand. In contrast, the TD approach may include extra unused equipment, or equipment of a technologically out-dated type; creating inefficiencies. Unused equipment may exist because the demand has reduced, or anticipated growth in demand has not materialised.
- 4.9 In this document, the term “efficiency” relates primarily to the matching of capacity to demand and the use of up-to-date equipment. Therefore, an efficient operator will normally have the lowest possible per unit cost and will also not be able to increase output and products or services without firstly increasing inputs and investments.

Which accounting methodology is the most appropriate?

- 4.10 Two alternative regulatory accounting methodologies may be used when prices need to be set on the basis of cost orientation¹¹:
- *FDC, also known as Fully Allocated Cost (“FAC”).*
 - *FL-LRAIC.*
- 4.11 This choice affects the type of costs that should be taken into account and the way costs are assessed (costs historically incurred or forward looking costs). The choice between these two accounting methodologies depends on the objectives of the regulator.
- 4.12 The FDC methodology allocates all the operators’ costs present in their financial information to all the services, products or regulated operations of the company. Therefore, the FDC methodology can be used only with a TD model. However, FDC is not limited to historic costs because adjustments can be made from historic to current costs. These adjustments consist of taking the current prices of the assets instead of the costs in the accounts. The costs of a product consist of direct variable costs, direct fixed costs and a share of joint and common costs. Several allocation rules of joint and common costs are available and are described in the ERG Common Position (summarised in Appendix B). Other methodologies try to attribute in a different manner joint and common costs present in the company accounts (e.g. Stand Alone Costs (“SAC”) and Embedded Direct Costs (“EDC”)) but are less compatible with regulatory objectives. All these methodologies (FDC, EDC, SAC) are based on the operator’s accounts.

¹¹ See for example: “*ERG Common Position: Guidelines for implementing the Commission Recommendation C (2005) 3480 on Accounting Separation & Cost Accounting Systems under the regulatory framework for electronic communications*” and “*On the use of LRIC models in price regulation, J. Confraria, J. Noronha, R. Vala, A. Amante, Instituto das Comunicações de Portugal*”.

- 4.13 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”¹². 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 concept of incremental cost is similar to, but not exactly the same as, that of marginal cost because the incremental cost approach includes fixed costs (i.e. volume independent costs) whereas the marginal cost approach does not. The key distinction between marginal costing and LRAIC costing is that in LRAIC, a sufficiently long time horizon is chosen over which all costs are marginal. The inclusion of the fixed costs with the incremental costs gives the term “average incremental costs”, since the total cost of the increment is divided by the number of units in question to give a unit cost. In the case of LLU, the increment is the entire local access network.
- 4.14 The term “forward looking” means that the costs are those costs that are incurred by an efficient operator. This means that capacity is matched to demand and that up-to-date equipment is used.
- 4.15 In a regulatory environment, it is common practice that all services should bear, in addition to their incremental cost, a reasonable or pertinent proportion of the common costs (e.g. general and administrative costs).

Overview of possible methodologies

- 4.16 If pure LRAIC (i.e. all costs that are common to more than one increment are excluded) is ignored, then there is a maximum theoretical set of eight alternative methodologies as there are two possible answers to each of the three questions explained in the paragraph 4.3. In practice, however, there are only four possible methodologies for setting cost oriented LLU prices because:

- *FL-LRAIC requires the use of current costs; and*
- *FDC accounting methodology is only compatible with TD models.*

- 4.17 The four possible methodologies are therefore:

- (1) The combination of historic costs, TD and FDC methodologies commonly called Historic Cost Accounting (“HCA”);
- (2) The combination of current costs, TD and FDC methodologies commonly called Current Cost Accounting (“CCA”);
- (3) The combination of current costs, TD and FL-LRAIC methodologies, commonly called TD LRAIC (“TD LRAIC”); and
- (4) The combination of current costs, BU and FL-LRAIC methodologies, commonly called Bottom-Up LRAIC (“BU LRAIC”).

¹² “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.”

Assessment of the 4 possible methodologies for the setting of cost oriented LLU prices

Figure 5: The four possible methodologies for the setting of cost oriented LLU prices

	Top-down		Bottom-up	
	Historic costs	Current costs	Historic costs	Current costs
FL - LRAIC		TD LRAIC		BU LRAIC
FDC	HCA	CCA		

HCA

4.18 HCA is based upon the actual reported financial results of an operator for a given period which has expired. These results are directly reconcilable with the statutory financial statements of the operator. The use of HCA can include certain inefficiencies in an operators business. Such inefficiencies are normally the result of legacy issues associated with former state controlled monopoly companies. Furthermore, the ERG Common Position suggests that the use of HCA is unsuitable for regulatory purposes:

“Historical cost information is generally accepted as being adequate for financial stewardship purposes but may provide unsatisfactory indicators for regulatory decision making. To recognise the effect of changing prices or when using a forward looking costing methodology, a valuation of the relevant asset base to current replacement cost values (also known as “value to the business”) should be performed.”

CCA

4.19 If the CCA methodology is preferred, then adjustments need to be made from historic costs (the costs present in operators’ accounts) to current costs. Under the CCA methodology, the costs of the operator are calculated using the operator’s accounts, but re-valuing the assets at their current cost. However, the change from the gross book value of the assets in the incumbent’s balance sheet implies a change in depreciation charges in incumbent’s income statement. For example, if the price of an asset has increased since the time it was acquired, the CCA depreciation charge related to this asset will be greater than the HCA depreciation charge. As a consequence, the LLU price, which is based on local loop charges, will be higher under CCA than under HCA. Under CCA, the operators’ income statement needs to be modified and, depending on the way the capital of the local loop operator is maintained, two approaches can be considered:

- *Under the **Operating Capital Maintenance (“OCM”)** concept the operating capability of the local loop operator is maintained. In this case, surpluses and deficits on the restatement of net assets to current cost are recorded in a balance sheet reserve and any changes are treated as a movement on reserves.*

- Under the **Financial Capital Maintenance (“FCM”)** concept the financial capability of the local loop operator is maintained. In this case, surpluses and deficits on the restatement of net assets to current cost are included in the income statement.

4.20 Under OCM, the only adjustment to be made in the HCA income statement is to modify the depreciation charge. Under FCM, an additional adjustment is made: the difference between the financial impact of general inflation on shareholder’s funds (general inflation creates a loss for shareholders) and asset price inflation (increase in asset prices generates a gain for shareholders that own this asset) is recorded in the income statement. If this difference is positive, the charges in the income statement are higher than under OCM, and the LLU price is higher which enables the incumbent to maintain its capital despite the loss of capital caused by general inflation. If this difference is negative (high increase in asset prices) the charges in the income statement are lower than under OCM and the LLU price is lower, which prevents from an over-recovery of costs.

TD-LRAIC

- 4.21 TD-LRAIC utilises the information gathered under CCA.
- 4.22 However, it is difficult to combine a TD cost model with the principles of the FL-LRAIC accounting methodology. A TD cost model uses the accounting information of the operator as a starting point and as a consequence the model is based on an existing network. From this starting point, it is not easy to comply with the principle of maximisation of efficiency as required by LRAIC.

BU-LRAIC

- 4.23 BU-LRAIC is based on analytical models. These analytical models include for example the use of up to date technologies, efficient costs, and assets an efficient operator would purchase to meet current and future demand.

Comparison of TD and BU modelling

- 4.24 The ERG Common Position makes recommendations about the suitability of TD and BU models:

When the LRIC methodology is preferred both TD and BU models can be used: *“An NRA could use either a BU or TD approach to determine the LRIC cost of an efficient operator. The two methods may be used as complementary tools; the TD model to determine the costs of the undertaking and the BU model to check its efficiencies”*

- 4.25 TD-CCA is however a cruder approach than BU-LRAIC and is more likely to be less accurate in its estimation of the efficient forward looking cost of LLU. The TD-CCA approach does not encompass the engineering model and network redesign aspects of BU-LRAIC. Furthermore, as well as being less accurate than BU-LRAIC there may also be some bias if adjustments made to take account of (for example) latest technologies or efficiencies are not complete.

4.26 Whether TD-CCA is likely to be biased upwards or downwards is not immediately obvious:

- If the incumbent is inefficient in some way, and an inefficiency adjustment is made for this, the estimate will be biased upwards and will be too high;
- If the adjustment for current technologies is inadequate, the direction of bias depends upon the impact of technological changes on costs. In the telecoms industry, technological change tends, generally, to reduce costs over time. In this case inadequate adjustment implies that TD-CCA will over estimate true costs.
- However, some costs pertinent to the local loop have risen (e.g. the price of copper). If this is not fully taken into account the cost estimate will be biased downwards. However, CCA (unlike HCA) is supposed to revalue assets in line with current prices.

4.27 Further difficulties with the CCA approach arise when the regulator does not have visibility of all the information necessary in relation to the actual costs of the incumbent. With BU-LRIC the regulator can take an independent view where information cannot be provided in sufficient granularity to enable regulatory decision making based on (for example) bench mark information or expert opinion.

4.28 Currently in Ireland the incumbent does not prepare CCA accounts for the access network. A requirement to prepare CCA account at this time, for the purpose of the current LLU price review, would make it very difficult and time consuming for the regulator and the incumbent to commence this process now. These accounts would also require a full independent audit and regulatory review.

4.29 The European Commission has also laid down some general rules for the setting of cost-oriented prices¹³.

Q. 1. Do you agree or disagree that there are only four possible methodologies (see Figure 5) for the setting of cost oriented LLU prices? Please explain your response in detail.

Q. 2. Which of the 4 possible methodologies for the setting of cost oriented LLU prices would you recommend, (a) HCA, (b) CCA, (c) TD LRAIC or (d) BU LRAIC, to be the most appropriate methodology for ComReg to use as part of the modelling exercise of the Eircom Access Network? Please explain your response in detail.

¹³ Commission Recommendation of 19 September, 2005 on accounting separation and cost accounting systems under the regulatory framework for electronic communications (2005/698/EC).

The Arcor Judgment of the ECJ

4.30 On 18 July, 2007, Advocate General Poiares Maduro delivered an opinion in the *Arcor* case. This was on foot of a request for a preliminary reference to the ECJ by an Administrative Court in Cologne, Germany. The German court had sought the opinion of the ECJ on a number of detailed questions concerning the obligation for cost orientation in pricing for LLU. Arcor AG & Co, a German competitor company had sought LLU from the German fixed line incumbent (Deutsche Telekom) and had made the preliminary reference in the context of alleging that the prices set by Deutsche Telekom for access to LLU (and approved by the federal regulatory agency in Germany) were too high. On 24 April, 2008, the ECJ delivered its final ruling. The Advocate General's opinion outlining suggested responses to the questions posed by the German court and the final ruling provide legal guidance on the setting of cost oriented prices for LLU. In particular, the suggested answers to the questions provide explanations about asset valuation methodologies that can be used and about the possibility of using analytical cost models for setting of LLU prices. The judgment and the Advocate General's opinion are a valid source of guidance for EU regulators. Furthermore, national courts will be required to take account of the judgement and the Advocate General's opinion, if called upon to interpret the concept of cost orientation and LLU prices under the national legislation of member states implementing the provisions of Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities ("the Access Directive").

4.31 Question 3 (a) asked of the ECJ refers to the valuation of assets for the setting of LLU prices:

"...the Administrative Court of Cologne asks whether depreciation charges and interests of assets (that should be covered by LLU prices) should be calculated on the basis of their gross replacement cost ("GRC") or their net replacement cost ("NRC")."

4.32 Under the BU LRAIC methodology, assets are valued at their GRC (assets are valued as if they were new thus there are no fully depreciated assets) while under the CCA methodology, assets are valued at their NRC (fully depreciated assets remain with a nil value). The Advocate General considered that the use of the GRC is possible in two circumstances. At paragraph 65 of his opinion he stated that:

"...there are two possible justifications which could be put forward. Firstly, (...) it is possible that the advanced age of the network could justify using a method based on gross replacement costs. Secondly(...), it is possible that (...), investment in alternative technologies available at the time, with functionality equivalent to Deutsche Telekom's local copper wire network, would have been significantly discouraged if the charges had been set below the figure obtained using a calculation method based on the gross cost of replacing the network.(...) If neither of these two justifications applies, the conclusion must be that it would

be contrary to the concept of cost-orientation to use as the exclusive basis for calculating costs the current replacement value of the assets, expressed in terms of current daily prices at the time of valuation.”

4.33 The ECJ gave its answer to Question 3 (a) at paragraph 119 of the final judgement where it stated that:

“the answer to Question 3 (a) must be that when applying the principle that rates for unbundled access to the local loop are to be set on the basis of cost orientation, in order to determine the calculation basis of the costs of the notified operator, the NRAs have to take account of actual costs, namely costs already paid by the notified operator and forward looking costs, the latter being based where relevant on an estimation of the costs of replacing the network or certain parts of it.”

4.34 Also, even if there is a risk of deterring investment in alternative local loops, the Advocate General, at paragraph 63 of his opinion recognised that:

“...setting charges for access to the existing local loop on the basis of the current cost of replacement with a new and equivalent local network does not necessarily reflect the costs inherent in the construction of this alternative infrastructure”.

4.35 Because the alternative technology must be available, the investment costs in an alternative infrastructure are different from those which would be required to build a new local copper wire network and the functionality and economic potential inherent in the alternative infrastructure can be different from the functionality offered by the local copper wire network. But the Advocate General confirmed that it is possible to set LLU charges on the basis of the GRC.

4.36 In answer to question 3 (c) posed by the German Court about the possible use of analytical (i.e. independent) models for the setting of LLU prices, the Advocate General suggested at paragraph 84 of his opinion that not taking costs booked in the operator’s accounts as a starting point for establishing charges, is not compatible with the objectives of the cost orientation principle:

“In order to assess whether the charges are consistent with the notified operator’s costs, the notified operator’s accounts provide the only possible starting-point for establishing those costs.”

4.37 However, the Advocate General stated that analytical models can be used if the use of GRC is more suitable:

“where incentives to invest in alternative infrastructure justifiably take precedence over the aim of fostering short-term competition on the local loop access market, giving priority to the cost of investment in a new, modern and efficient network at the expense of the notified operator’s actual capital costs should be regarded as compatible with the principle of rates set on the basis of cost-orientation”.
(See paragraph 89 and footnote 48).

4.38 ComReg has considered the different methodologies carefully. It is of the preliminary view that:

- *It should not adopt the HCA methodology because it uses historic costs and the ERG recommends that historic costs are not satisfactory for regulatory decision making. Historic costs require the calculation of an “efficiency” adjustment. In calculating the cost of the local loop the historic costs of an operator are adjusted to reflect the costs of an efficient operator. The calculation of this efficiency adjustment can prove to be problematic and extremely difficult to quantify.*
- *Neither should it adopt the TD-LRAIC methodology because the LRAIC methodology requires assessment of the costs of an efficient operator (equipment currently needed which is very difficult to calculate in a TD model, which unavoidably incorporate inefficiencies (actual equipment bought rather than equipment currently needed). Furthermore, ComReg notes that TD-LRAIC is the least used methodology in the EU15 countries (see Figure 6 below). In this respect ComReg will have regard to the approaches of other EU regulators.*

4.39 From an analysis of alternative infrastructure developed in section 3 and the methodologies above, ComReg is of the preliminary view that either BU-LRAIC or CCA would be the most appropriate methodology to adopt in Ireland. ComReg believes it is appropriate for it to take guidance from the opinion of the Advocate General and the final judgement in *Arcor*:

- *Where there is no risk of deterring investment in alternative technologies, the net replacement costs and the data from the accounting system of the operator should be used (i.e. CCA methodology).*
- *Where such a risk arises, the combination of asset valuation at their GRC and of analytical cost models can be used (i.e. BU-LRAIC methodology).*

4.40 ComReg’s preliminary view is that the two possible methodologies are therefore:

1. The combination of TD, FDC and current cost methodologies; commonly called CCA; or
2. The combination of BU, FL-LRAIC and current cost methodologies; commonly called BU-LRAIC.

4.41 The choice between these two methodologies will depend on the risk of deterring investment in alternative infrastructures. This choice is considered in the subsequent sections.

Q. 3. Do you agree or disagree that the two possible methodologies for setting the monthly LLU rental charge, in Ireland, are CCA or BU-LRAIC? Please explain your response in detail.

EU15 benchmark of methodologies used for LLU pricing

4.42 The following section identifies the costing methodologies used by the different EU15 countries (excluding Ireland) with a view to identifying, wherever possible, to which extent they relate to the issue of investment in alternative infrastructure. Special attention is given to the cases of France and the United Kingdom, where reviews of the methodology have recently been undertaken. Figure 6 lists the methodologies used in the EU15 countries (excluding Ireland).

Figure 6: Methodologies used in the EU15 countries¹⁴

Countries	Top-Down Historic costs FDC (HCA)	Top-Down Current costs FDC (CCA)	Top-Down Current costs FL-LRAIC (TD-LRAIC)	Bottom-Up Current costs FL-LRAIC (BU-LRAIC)
Austria				X
Belgium				X
Denmark		X		X
Finland	X			
France		X		
Germany				X
Greece				
Italy	X			
Luxembourg				
Netherlands			X	
Portugal	X			
Spain		X		
Sweden				X
United Kingdom		X		

4.43 Of the EU 15 countries, Finland is the only country which does not use geographic averaging for setting the LLU prices. This is because there are several local loop operators and therefore, there is a differentiated LLU price for each one.

France (CCA - TD, current cost, FDC - with economic amortisation)

4.44 Before the end of 2005, the accounting methodology used to set the prices of the unbundled local loop was “LRAIC”. This was used in the Champsaur report¹⁵ and the European Commission “*Recommendation 98/195/EC of 8 January, 1998 on interconnection in a liberalized telecommunications market.*” Local loop costs were

¹⁴ Source: NRAs websites, exact sources are detailed in the countries review. Sufficient publicly available information was not obtainable for Luxembourg and Greece. In France, this is not a pure accounting methodology as a tilted annuity formula is used

¹⁵ *« Interconnection and universal service financing in the telecommunications sector », French Ministry for Post, Telecommunication and Space, 1996, *La documentation française*

set on the basis of a LRAIC model, developed by France Telecom (under decision 02-323 of the French regulator, ARCEP).

4.45 In April 2005, however, ARCEP launched a “consultation on copper local-loop costing methods” which was followed by decision 05-0834 (adopted in December, 2005). In its consultation, ARCEP proposed four possible cost methodologies for the local loop:

- *HCA.*
- *CCA.*
- *Economic amortisation method: this method is very similar to the CCA method as it is based on France Telecom’s actual investments. However, the amortisation of assets is carried out using a tilted annuity formula.*
- *Successive replacement cost method: this method is based on theoretical investment cash flows and on the “make or buy” principle and is compliant with the LRAIC methodology¹⁶.*

4.46 In this consultation, ARCEP considered that neither the HCA method nor the successive replacement cost method were appropriate.

4.47 Even though the HCA method reconciled to France Telecom’s accounts, ensuring that the costs are recovered in aggregate and can be easily audited, French OAOs would, according to ARCEP, be concerned about the uncertainties caused by the investment strategy being controlled by the incumbent. This method also did not take into account historic price changes and did not anticipate future necessary investment.

4.48 A definition of the successive replacement cost method is provided by Arcep:

“According to this method the value of an in-service asset is assessed as the difference in the discounted costs of two scenarios:

- a scenario whereby the company renews the asset immediately and then every T years if T is the economic lifespan of a new asset;

- a scenario whereby the company delays renewal of the asset until the end of its residual life span.”

4.49 The successive replacement cost method had the advantages of giving the correct “build or buy” incentives and allowing the maintenance of the local loop due to the higher LLU prices. However, this method did not link access network remuneration (LLU price remunerates the access network) with the actual investment of the incumbent and as a consequence did not encourage investment by the incumbent. The result was that France Telecom would not be encouraged to make efficient investments (ARCEP stated that this difference is particularly critical for assets

¹⁶ In the decision N°02-0323, ARCEP describes the “successive step replacement cost method” used by France Telecom before 2005 for the setting of LLU price. According to ARCEP, LLU prices are assessed on the basis of the LRAIC methodology.

with long and uncertain economic lifespan). Even if this method gave correct “make or buy” incentives, ARCEP considered that this was only theoretical. The incentive to invest in the local loop depends more on prices in the retail market and OAOs could find sources of finance to invest in the local loop. According to ARCEP, this method gave a monopoly rent to France Telecom, since LLU prices would be higher than otherwise.

4.50 In its 2005 consultation, ARCEP considered that the CCA method and the economic amortisation method were preferable for the five following reasons:

- *LLU charges are based on France Telecom’s current investments which gives strong incentives for France Telecom to invest.*
- *These methods do not encourage operators to invest in a new (duplicate) local loop: “any advantages France Telecom may derive from using the local loop because of previous circumstances can be passed on to alternative operators”.*
- *LLU charges are more attractive in comparison with the replacement cost method, which encourages OAOs to provide DSL services to a significant number of MDF sites and to invest in collection networks.*
- *These methods take into account price changes and give proper incentives to France Telecom to maintain its network, which is beneficial to the consumer interest.*
- *Even if these methods do not encourage investment efficiency (France Telecom is indeed remunerated for all its investments) they introduce a delay between the time when these costs are determined for the setting of LLU prices and the time when these costs are incurred in practice by France Telecom: within this delay, France Telecom has an incentive to realise productivity gains.*

4.51 A definition of the economic amortisation method is provided by ARCEP:

“The historical cost accounting method is based on France Telecom’s accounts. Depreciation is therefore equivalent to the accounting amortisation of the local loop network and the fixed capital cost is calculated on net value.

The current cost accounting method is based on similar logic but includes changes in asset prices. Technical progress is therefore taken into account to allow the operator to finance network replacement when necessary.”

4.52 With the economic amortisation method, the increase in the depreciation charge over time exactly counterbalances the decrease in the capital charge over time, which implies that the sum of the depreciation charge and the cost of capital are constant over the years if prices are stable. Therefore, LLU prices that are based on these charges are less influenced by the short term investments of the incumbent. Also, the annuity varies with asset price changes, which would give proper signals to investors.

4.53 According to Professor Martin Cave:

“...the incorporation of economic depreciation in a CCA accounting framework has the advantage of approximating the trajectory of costs more closely with that of competitive prices.” To conclude, ARCEP chose the economic amortization method instead of the basic CCA method.”¹⁷

4.54 Of special note in the French case is the fact that the local loop costs were not calculated for all the copper lines. In 2002, ARCEP (at that time called ART) decided¹⁸ that the calculation of the LLU tariff, which must be geographically averaged in France, should consider two types of areas:

- *1st area: “corresponds to relatively dense areas in which it is likely that alternative operators will invest in unbundling within 2 years”.*
- *2nd area: “corresponds to less densely populated areas in which it is highly unlikely that a new entrant will invest in unbundling over the same period”.*

4.55 ARCEP argued that, in order for the principle of cost-orientation to be verified, it was required to take into account the progressive “roll-out” of unbundling. In practice, this meant that ARCEP considered that it was not possible for unbundling to be available for more than 70% of the lines within 2 years. However if 70% of lines were exceeded, the LLU price calculation would be revised. ARCEP considered that 95% of the unbundled lines would be in the 1st area and 5% in the 2nd area and calculated the LLU tariff on this basis¹⁹.

4.56 In its 2005 consultation, three options were considered by ARCEP to take into account this geographic dimension of unbundling:

- *To keep the principles of the 2002 decision – a single LLU tariff was proposed, but two types of areas were considered to calculate this tariff.*

¹⁷ “Valuation Issues relating to the local loop”, Martin Cave, August 2005.

¹⁸ ARCEP, decision 02-323.

¹⁹ ARCEP, decision 02-323.

- *Unbundled tariffs were to be calculated on the basis of access lines corresponding to the profitable universal service areas (approximately 95% of lines). The universal service mechanism compensated for the difference between the cost of the local loop in non-profitable areas and the LLU average price.*
- *All access lines were taken into account. This option was easy to implement and stable, but it was necessary to eliminate double counting due to universal service compensation.*

4.57 ARCEP decided to use option 2 (unbundled tariffs were to be calculated on the basis of access lines corresponding to the profitable universal service areas) as it was of the opinion that only lines in more populated areas were likely to be unbundled.

United Kingdom (CCA - TD, current cost, FAC)

4.58 In 1996/97, The UK regulator, (then Oftel – now known as the Office of Communications, or “OFCOM”) determined that the appropriate costing methodology for its regulatory decisions would be FL-LRIC²⁰ since: “*it provides better signals to BT and its competitors (including potential entrants) and consumers in relation to investment decisions*”. Oftel’s intent was to promote competition in access.

4.59 Oftel was of the view that although, since 1996, Cable operators had expanded their network coverage, they still covered only half of UK homes. In addition wireless local loop had been tried, but its business model was not viable:

- *“Although the cable companies have built large networks and are able to offer telephone and broadband services – as well as other services such as TV – in direct competition with BT, they only cover around half of UK homes.”*
- *“...the narrowband wireless local loop providers were unable to sustain their business models”.*²¹

4.60 In view of the weakness of competition, the LLU pricing methodology was discussed again by OFCOM, Oftel’s successor, in 2005 in two different documents²². Three different approaches were discussed to set LLU prices²³:

²⁰ <http://www.ofcom.org.uk/static/archive/Oftel/publications/broadband/llu/shac1001.htm>

and Valuing copper access - Part 2 – Proposals - 16 March 2005:

<http://www.ofcom.org.uk/consult/condocs/copper/value2/value2/copper2.pdf>

²¹ Valuing copper access - Final statement (18 August 2005):

<http://www.ofcom.org.uk/consult/condocs/copper/value2/statement/statement.pdf>

²² Valuing copper access - Final statement (18 August, 2005) and Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6 Statement (30 November, 2005).

²³ These three different approaches were discussed in the 2nd document which is Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6 Statement (30 November, 2005).

- *HCA*.
- *LRIC+*.
- *CCA-FAC*.

4.61 According to OFCOM, the HCA methodology failed to encourage competing infrastructure and sent poor signals for investment by the incumbent in the local loop. Furthermore, OFCOM considered that the main problem with the LRIC model, (since it was provided by BT) was that it gave little visibility and was not subject to external audit: *“Given that LRIC+ is not conceptually superior to CCA FAC as a cost basis for setting charges, but that CCA FAC has transparency benefits, OFCOM proposes using CCA FAC as the appropriate basis for setting the fully unbundled rental charge ceiling.”*

4.62 As a consequence, since 2005, OFCOM has considered that the use of CCA-FAC (instead of CCA-FL-LRAIC) is superior as it provides more transparency to BT, its competitors and consumers in relation to the setting of LLU charges.

4.63 OFCOM also considered that LLU charges should not be geographically averaged because, even if de-averaged prices could provide better signals for investment decision making, this method generated *“consumer affordability issues and significant practicality issues”*²⁴.

4.64 However, OFCOM has adjusted LLU prices to take into account the fact that the provision of DSL is constrained by the D-side (distribution side i.e. between the customer premises and the street cabinet) loop length: *“BT has provided data which suggests that currently the average length of a copper loop that can be used to provide a 2Mbit/s broadband service is approximately 19% shorter than the average copper loop.”*²⁵ OFCOM considered that E-side (exchange side between the street cabinet and the exchange) length did not constrain the provision of DSL. As a consequence, OFCOM applied a 16% reduction to D-side costs. OFCOM considered that if, in the future, unbundled loops were used to provide voice services only, then this methodology might change.

Spain (CCA - TD, current cost, FAC)

4.65 In its public consultation of May, 2006 in relation to the Wholesale Unbundled Access market²⁶, the Spanish national regulator, CMT, described the broadband competitive environment: - Telefónica had 17 million installed accesses; cable operators had 6 millions installed accesses but only 2.2 million customers and 1 million broadband customers; and OAOs using LLU addressed 50% of all Telefónica lines. CMT considered that within 2 years, no operator could achieve the same coverage as Telefónica.

²⁴ Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6 Statement (30 November, 2005).

²⁵ Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6 Statement (30 November, 2005).

²⁶ Resolution for the approval of the definition of the unbundled access market to the metallic loop and sub loop (including shared access) for the provision of broadband and voice services, the analysis of the market, the designation of the operator with significant market power and the setting of special obligations, with notification to the European Commission- 11 May, 2006.

4.66 The methodology used to assess the LLU prices is a top-down current cost model, as indicated in the CMT document “Memoria de Actividades” published in 2006²⁷:

- *Access prices to the local loop should be oriented towards the cost of production of Telefónica.*²⁸
- *CMT enforced a decision in 2006 so that Telefónica’s accounting system reflects its costs of production.*²⁹
- *Under the 2006 decision, CMT required that Telefónica’s assets are assessed at their current cost*³⁰.

Denmark (LRAIC with hybrid model based on a BU model)

4.67 In its 2005 annual report³¹, the Danish regulator, NITA, stated that: “*The National IT and Telecom Agency’s revision of the LRAIC model in 2005 was discussed in detail at the meetings of the Telecommunications Forum. In the course of the discussions it was mentioned that the model is based on the assumption that competitive alternative access technologies will emerge, but these have not yet been rolled out to a sufficient extent.*”

4.68 A hybrid model comprising both a BU model and a TD model has been developed in Denmark for the setting of LLU prices. Although elements of both types of models are incorporated in the hybrid model, the hybrid model is substantially based on the BU model.³²

Belgium (BU LRAIC)

4.69 In Belgium, the Belgian regulator, IBPT, issued a consultation in April, 2007 in relation to LLU pricing, following which a decision was issued in June, 2007. In its consultation,³³ IBPT stated its objectives as follows:

- *“IBPT considers that the duplication of the actual copper local loop is not desirable.”*
- *“IBPT wants to develop the LLU market to promote competition on the retail market.”*
- *“IBPT wants to give appropriate incentives to invest in the local loop.”*

²⁷ http://www.cmt.es/es/publicaciones/anexos/2006_capitulo2.pdf

²⁸ “*To offer the service of access to the loop at a price oriented in function of the production costs*”.

²⁹ “*In the next section, the decisions taken by the CMT with regards to cost accounting in 2006 are detailed. This includes either decisions taken in addition to the current legislation or decisions taken according to the enhancements objectives and the updates of accounting principles, in order to represent correctly production costs for the various services.*”

³⁰ Resolution of the 8th June, 2006 on the proposal of “Telefónica de España” about the depreciation method to be applied in the 2005 cost accounts.

³¹ ITSK - National IT and Telecom Agency, Annual Report 2005.

³² Pages 7 to 9 of “*Report on the LRAIC Model- Revised Hybrid Model (version 2.3)*”, IT- og Telestyrelsen, December, 2005.

³³ Consultation on request of the Council of the BIPT of 24 April, 2007 regarding the draft decision ‘BRUO rental fee’.

4.70 IBPT decided to set LLU prices using a BU model, because a BU model enabled the incumbent to recover its investment and to continue maintaining its network. An LLU price based on a BU model also gave correct incentives for investment in new local loop technologies and offered higher transparency.

4.71 In this BU model, all PSTN lines in Belgium were considered (not only urban areas - since IBPT did not want to stimulate unbundling in one region, in preference to another).

Austria (BU LRAIC)

4.72 In the decision “*Market for unbundling: M 12/06-45 of December 18, 2006*”, the Austrian regulator, RTR, stated that FL-LRAIC was the preferred costing methodology. In the same document, RTR stated that the FL-LRAIC accounting methodology gave incentives to OAOs to invest in alternative local loop and gave appropriate incentives to Telekom Austria to invest in its local loop³⁴.

Sweden (BU LRAIC)

4.73 In the document “*Policy for access regulation of last mile networks*” (10 July, 2006) the Swedish regulator, PTS, stated that it used the LRIC accounting methodology in order to ensure that incentives to invest in alternative infrastructures were not deterred. However, bitstream was not priced using the LRIC method in order to give operator incentives to use LLU rather than bitstream. PTS used a hybrid model to assess local loop costs: a reconciliation between the LRIC TD model and the LRIC BU model was carried out. However, the BU model was used to set LLU prices, since it reflected the cost of an efficient operator³⁵.

Germany (BU LRAIC)

4.74 ComReg understands from BNetzA that it uses the BU LRIC approach in the setting of LLU prices. The prices are calculated on the basis of an analytical cost model of the access network developed by independent consultants.

4.75 Relevant assets are valued on a current cost basis.

The Netherlands (TD LRAIC)

4.76 For the setting of LLU monthly prices, OPTA uses a TD LRAIC cost system, based on KPN's accounting records.

Portugal (HCA – TD historic FDC)

4.77 In 2004, the Portuguese regulator, ANACOM, launched a public consultation about the wholesale unbundled access market in which it stated its preference for Fully Distributed Historic Costs (“FDHC”). ANACOM considered that fully distributed historic costs were more appropriate because they remedied inappropriate and possibly excessive pricing.

³⁴ “As in the previous procedures (Z 12/00 et seq.), the order was based on the costs of efficient service provision calculated using an analytical bottom-up model. The permissibility of using such a bottom-up model to calculate costs had already been confirmed in principle by the Austrian Administrative Court in a ruling handed down in June, 2005 (Procedure Z 14/00).” Communications report, 2006.

³⁵ Source: 10 October, 2003 - Final Reconciliation Report.

4.78 Following notification by ANACOM to the European Commission, the EC asked ANACOM to assess whether FL-LRIC would be more appropriate³⁶. Taking into account the comments of the European Commission, ANACOM stated that it would be possible in the future to assess costs using a FL-LRIC cost model.

4.79 Finally, in its April, 2006 determination on LLU³⁷, ANACOM decided to use the FDHC methodology, based on Portugal Telecom's cost information, but referred to the FL-LRIC methodology to remove costs due to inefficiencies from the FDHC model.

Finland (HCA - TD historic FDC)

4.80 In Finland, the regulator, FICORA, set prices on the basis of the TD/historic cost/FDC methodology for local loop operators with SMP that have to set their prices on the basis of the cost orientation principle.

4.81 The setting of LLU prices was described in the market analysis of SMP in the market for wholesale unbundled access to local loops (unofficial translation) in March, 2007:

- *“Cost-oriented pricing is based on performance costs supported by evidence.”*
- *“The pricing obligation is accompanied by a cost-accounting obligation (and sometimes accounting separation obligation).”*
- *“Cost-accounting must generate such accurate and reliable information that the cost orientation of prices can be evidenced and evaluated.”*
- *“The pricing and cost accounting of a telecommunications operator must, therefore, be clearly related.”*

4.82 Operational efficiency was also considered when setting LLU prices as *“the pricing of network operators may not be higher than the corresponding costs arising in an efficient operation. In Finland, cost-oriented pricing is mainly based on proven performance costs”*³⁸.

Italy (HCA - TD historic FDC)

4.83 In its analysis of the LLU market³⁹ in February, 2006, the Italian regulator, AGCOM, required LLU prices to be set on the basis of a FDC/HCA methodology:

- *AGCOM considered that other methodologies such as LRIC or CCA were not suitable for the Italian market since there is only one local loop infrastructure in Italy.*

³⁶ Case PT/2004/0117: Wholesale unbundled access (including shared access) to metallic loops and sub-loops for the purpose of providing broadband and voice services in Portugal - Comments pursuant to Article 7(3) of Directive 2002/21/EC1.

³⁷ Determination of 13.4.2006 determination of icp-anacom regarding prices of the local loop unbundling to enter into force as from 01.01.2006.

³⁸ Broadband prices in the Nordic countries in 2006, FICORA, January 2007.

³⁹ Delibera n. 4/06/CONS.

- *This methodology ensures Telecom Italia recovers its costs.*
- *The chosen methodology fosters competition to the benefit of consumers thanks to lower prices.*

Greece / Luxembourg

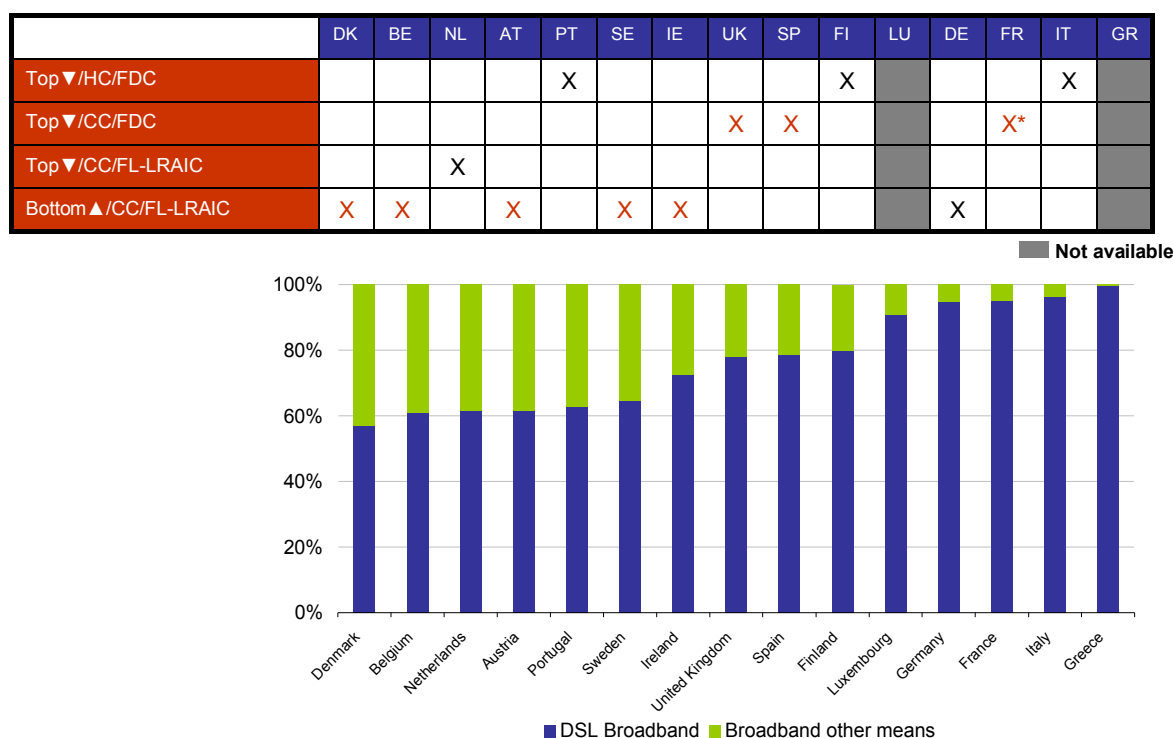
4.84 Publicly available information on LLU is not readily obtainable for either Greece or Luxembourg.

Preliminary conclusions in relation to methodologies used for LLU pricing

4.85 Figure 7 shows the choice of costing methodology by jurisdiction with the market share of operators with alternative local loops for the EU15 countries. It illustrates that in general:

- Where operators based on alternative local loops (cable, FWA, etc.) hold more than 25% of the broadband market, the preferred methodology is BU LRAIC (Denmark, Belgium, Sweden, Austria,
- Where operators based on alternative local loops (cable, FWA, etc.) hold less than 25% of the broadband market, the preferred methodology is CCA (France, Spain, UK) and sometimes HCA (Finland, Italy).
- Insufficient information was available to make a determination in relation to certain countries (Greece, Luxembourg).
- Certain countries appear not to be consistent with these observations, however insufficient publicly available information is obtainable to assess the reasons for this. These countries are:
 - Germany.
 - Portugal. ANACOM has referred to the FL-LRIC methodology to remove some inefficiencies (see 4.79 above).
 - The Netherlands. OPTA has chosen TD-LRAIC, which is close to BU-LRIC in terms of principle (LRAIC principles).

Figure 7: LLU pricing methodologies and share of DSL and alternative technologies in EU15 countries in July, 2007



Source: NRA's websites, Communications Committee Working Document Subject: Broadband access in the EU: situation at 1 July, 2007

Q. 4. Do you agree or disagree with the summary as set out above (Figure 7) in relation to the methodologies used in EU15 countries for the purpose of setting cost-oriented LLU prices? If not, please explain why. If there is any additional information which should be brought to ComReg's attention and you are aware of it, please include it in a detailed response.

Q. 5. Do you agree with the proposition that, in general, where there is evidence that operators with their own alternative local loops (cable, FWA, etc.) have made, or have plans to make significant investments, that the preferred methodology in the EU 15 is BU LRAIC? Please explain your response in detail.

Q. 6. Do you agree with the proposition that, in general, where there is evidence that operators based on alternative local loops (cable, FWA, etc.) have not made significant investments to date and have no plans to do so that the preferred methodology in the EU 15 is CCA? Please explain your response in detail.

5 Possible methodologies for setting LLU prices in Ireland

- 5.1 ***One of ComReg’s objectives is ensuring that Eircom complies with its legal obligation of cost orientation in relation to the price of LLU. To set a price in accordance with cost orientation, ComReg must consider costs actually recovered and costs actually incurred by Eircom in the provision of LLU. In this chapter we consider the various methods for doing this. ComReg’s preliminary conclusion is that because OAOs are unlikely to unbundle 100% of exchanges, the price of LLU should reflect only the cost of those lines that are likely to be unbundled over the time frame of this review. The proportion of lines that is ultimately used should reflect the principle that there should be no over recovery by Eircom of its costs.***

Objectives of regulation when setting LLU prices

- 5.2 Section 4 demonstrates that the choice of the methodology for the setting of LLU prices can affect the development of competition in the telecommunications markets (line rental/fixed calls/broadband etc) and the development of alternative access infrastructures. Low LLU prices might, on the one hand, promote DSL based competition and avoid any inefficient duplication of the local loop. On the other hand, they may reduce incentives for the incumbent to maintain and develop its local access network and for OAOs to develop viable alternatives⁴⁰. LLU prices that are too high may lead to either an inefficient duplication of the local loop or, may deter OAOs from efficient investment in LLU based services.
- 5.3 Under s 12 of Communications Regulation Act, 2002 and Article 8 of the Framework Directive ComReg’s objectives are described as being, *inter alia*, to:
- *Promote competition.*
 - *Contribute to the development of the internal market.*
 - *Promote the interests of users within the Community.*
- 5.4 ComReg’s strategy statement for 2008 - 2010 (ComReg Document No. 07/104 published 17 December, 2007) sets out ComReg’s goals for the period. One of those goals is the creation of conditions suitable for competition and to promote innovation.
- 5.5 In the context of ComReg’s statutory objectives, LLU is a tool that can be used to promote competition. This may be achieved (according to s 12 of the Communications Regulation Act, 2002) by:
- *Ensuring that users, including disabled users, derive maximum benefit in terms of choice, price and quality.*

⁴⁰ ARCEP, “Consultation on copper local-loop costing methods” states as follows: “- the tariff structure must provide sufficient return for France Telecom for it to maintain its copper access network in good working order and in view of this allow higher retail prices than those aligned on short-term marginal costs - the tariff structure must also be sufficiently low to allow development of effective competition in downstream markets.”

<http://www.arcep.fr/fileadmin/reprise/publications/c-publique/consult-boucle-cuivre0405-ang.pdf>

- *Ensuring that there is no distortion or restriction of competition in the electronic communications sector.*
- *Encouraging efficient investment in infrastructure and promoting innovation.*
- *Encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources.*

5.6 When determining the most suitable methodology for setting LLU prices, ComReg is therefore required to take in to account and to act in accordance with and in furtherance of its statutory objectives. LLU charges should be set by ComReg in a way that as best as possible strikes a balance between two principles that accord with its statutory and policy objectives, namely:

- *To encourage the development of alternative local loop infrastructure (“encouraging efficient investment in infrastructure”).*
- *To promote competition in the local access market through LLU (“promote competition”).*

5.7 The Access Directive highlights the need to take both of these objectives in to account: *“the imposition by national regulatory authorities of mandated access that increases competition in the short-term should not reduce incentives for competitors to invest in alternative facilities that will secure more competition in the long-term”*.⁴¹ (Emphasis added). The Access Directive also provides that: *“National regulatory authorities shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits.”*⁴²

5.8 ComReg also considers that the policy direction issued by the Minister for Communications, Marine and Natural Resources in 2003 and 2004 are of relevance to its objectives. Of particular relevance are the policy directions of 2003 in relation to broadband and industry sustainability and the policy directions of 2004 requiring ComReg to focus on the promotion of competition (including those policy directions requiring ComReg to incentivise alternative technology delivery platforms to support competition).

Achievement of these objectives in Ireland

5.9 As discussed in section 4, setting LLU charges by striking a balance between the principle of encouraging the development of alternative access infrastructure (such as cable/FWA for example) and the principle of promoting competition in the LLU access market, can be achieved through two different methodologies:

- *The BU-LRAIC methodology, which is appropriate if there is a risk of deterring investment in alternative local loops.*

⁴¹ Recital 19.

⁴² Article 13 (2).

- *The CCA methodology, which is appropriate where there is no risk of deterring investment in alternative access infrastructure, because it is unlikely to be deployed in the medium term in any case.*

5.10 The expected competitiveness of alternative access infrastructure in the medium term should determine which of these two methodologies is more appropriate in Ireland. There are, in theory, three options:

- *Option 1: Apply CCA everywhere if alternative access infrastructure is not likely to be competitive in a substantial area.*
- *Option 2: Apply BU-LRAIC where alternative access infrastructure will probably become available and competitive and apply CCA elsewhere.*
- *Option 3: Apply BU-LRAIC everywhere if it is likely that alternative access infrastructure will become available and competitive everywhere (or almost everywhere).*

5.11 Alternative local access footprints have been described in section 3.

Option 1: Apply CCA everywhere if alternative access infrastructure is not likely to be competitive in a substantial area

5.12 ComReg is of the preliminary view that Option 1 need not be considered further because cable and wireless are already available in a substantial area in Ireland. This leaves the choice between Options 2 and 3 depending on the expected footprint of FWA compared to DSL, since it is FWA that has the best prospect of providing an alternative means of broadband services in areas not covered by cable.

Q. 7. Do you agree or disagree that Option 1 (*Apply CCA everywhere if alternative infrastructure is not likely to be available in a substantial area*) is not appropriate in Ireland given the investment in alternative platforms to date? Please explain your response in detail.

Option 2: Apply BU-LRAIC where alternative access infrastructure will probably become available and competitive and apply CCA elsewhere

5.13 This option uses different methods in different areas, depending on the local availability of alternative infrastructure. If FWA coverage and technology is unlikely to expand in the medium term because it reaches the limits of its capabilities, then cable networks will remain the main alternative infrastructure to Eircom's copper local loop.

5.14 Since cable network coverage is not likely to extend beyond major cities and some other small parts of Ireland⁴³, BU LRAIC would be applied in these areas to encourage this investment in alternative infrastructure.

⁴³ <http://www.upc.ie/about/ntl/improvements>

- 5.15 This Option 2 will most probably lead to geographically de-averaged LLU prices, so that there would be a risk that retail prices will also be de-averaged. However, ComReg remains of the view that the averaging of retail tariffs is an important mechanism for maintaining the affordability of services, particularly for users in rural and high cost areas⁴⁴.

Q. 8. Do you agree or disagree that Option 2 (*Apply BU-LRAIC where alternative access infrastructure will probably become available and competitive and apply CCA elsewhere.*) will most likely lead to geographically de-averaged prices? Please explain your response in detail.

Option 3: Apply BU-LRAIC everywhere if it is likely that alternative access infrastructure will become available and competitive everywhere (or almost everywhere)

- 5.16 As described in section 3, both FWA and cable operators have significant footprints in terms of coverage of both area and population. However, investment is required to further increase the coverage of FWA and to upgrade cable networks to support broadband⁴⁵.
- 5.17 If, in the medium term, the growth in FWA continues and if its coverage is extended and taking into account the increase in frequencies available and technological improvements, ComReg would prefer a methodology for LLU prices that does not deter its development.
- 5.18 In these circumstances, the appropriate choice in ComReg's preliminary view would be to use the BU LRAIC methodology, as it encourages investment in alternative infrastructure at the local access level.

Q. 9. Do you agree or disagree that Option 3 (*Apply BU-LRAIC everywhere if it is likely that alternative access infrastructure will become available and competitive everywhere (or almost everywhere)*) provides an appropriate incentive for investment in alternative infrastructure? Please explain your response in detail.

ComReg's preferred option

- 5.19 ComReg is of the view that other fixed operators will continue to invest in alternative types of access infrastructure, (such as cable and FWA), in order to deliver retail broadband services. Accordingly, ComReg's preferred option, as a preliminary position, is Option 3. If it were the case that investment in alternative

⁴⁴ ODTR Decision Notice No. D6/00 – Report on the ODTR consultation on local loop unbundling.

http://www.comreg.ie/publications/report_on_the_odtr_consultation_on_local_loop_unbundling_-_decision_notice_d6_00.583.100032.p.html

⁴⁵ <http://www.upc.ie/about/ntl/improvements>

types of infrastructure did *not* progress as expected in the medium term, ComReg believes that it would have to carefully re-examine this approach (if adopted) in the context of any subsequent price review.

5.20 ComReg considers that Option 2 would be difficult to implement, because determining the cost of local loops that are located outside major city footprints under the CCA methodology requires precise expenditure information by local area and this information is unlikely to be available.

5.21 Option 2 requires the setting of two different LLU prices, which itself raises very difficult issues. From a theoretical point of view, geographically de-averaged prices have the advantage of providing appropriate incentives to invest in infrastructure technologies. However, in practice:

- *No European country (except Finland, which unlike any other jurisdiction has 37 local SMP operators) uses de-averaged prices.*
- *De-averaged LLU prices may create the risk that customers would have different retail prices in Ireland.*
- *New Zealand, for example, indicates a degree of resistance to deaveraged pricing.*
- *Compared to Option 2, Option 3 enables ComReg to retain a geographically averaged LLU price, which its predecessor the Office of the Director of Telecommunications Regulation (“ODTR”) considered to be an important mechanism for maintaining the affordability of services, particularly for users in rural and high cost areas and members of vulnerable groups⁴⁶.*

5.22 So as to properly accord with the principle of cost orientation⁴⁷, ComReg is of the preliminary view that Option 3 should be refined further in terms of the portion of the Eircom access network that is used for the calculation of the cost. The reason for this is that the up front investment, the economies of scale and technological limitations for long lines, will make LLU impracticable for OAOs as a means of serving some subscribers, with services such as broadband, irrespective of the means used for setting the LLU price. ComReg is therefore considering calculating the LLU price, based only on the costs of those lines for which LLU may be economically and technically viable during the expected duration of any revised price that might be imposed on Eircom. This approach has been used in different ways in both France and the United Kingdom.

5.23 In setting a prospective time horizon for evaluation of the probable take up of LLU, ComReg proposes to consider a period (“the medium term”) of **two to three years**. ComReg also proposes to set any new LLU price for the same period. However, if ComReg sees evidence that its original assumptions are materially incorrect, it would revise this position if necessary. For example if significantly more or fewer exchanges were unbundled that may require a review. Similarly, if LLU take up in

⁴⁶ ODTR Decision Notice No.D6/00 – Report on the ODTR consultation on local loop unbundling.

⁴⁷ In accordance with Article 13(1) of the Access Directive, Art 13.1, the principle of cost orientation can be summarised by the following sentence: “National regulatory authorities shall take into account the investment made by the operator and allow him a reasonable rate of return on adequate capital employed, taking into account the risks involved.”

existing unbundled exchanges is unsatisfactory this also may necessitate a new approach.

Q. 10. Do you agree or disagree that ComReg should calculate the LLU price in accordance with the cost orientation principle taking into account the fact that some lines are more likely than others to be unbundled in the medium term? Please explain your response in detail.

Q. 11. Do you agree or disagree with ComReg’s preliminary view that the “medium term” for LLU should be 2 to 3 years from the date of any decision on LLU pricing? Please explain your response in detail.

Q. 12. Do you agree that a price should be specified for the duration of the “medium term”? Please explain your response in detail.

Calculation of costs for exchange sites

5.24 Assuming for the purposes of this consultation that ComReg does decide to proceed as outlined under Option 3 above, it has also identified 4 further possible options for calculating the average cost of local loops for exchange sites in accordance with the principle of cost orientation.

5.25 These four options for the coverage used in calculating the costs are:

- *Option A: Calculate the costs for only those exchange sites where LLU is likely to be practicable.*
- *Option B: Calculate the costs of all exchange sites but give a weighting of x% to those exchange sites where LLU is likely to be practicable within the above mentioned timeframe and 1-x% to the other areas, to allow for some local variations from ComReg estimates. This is the method used in France⁴⁸.*
- *Option C: Calculate the costs for all exchange sites, but exclude the costs of those local loops that are too long for DSL. This is the method used in UK. The very long loops could also be excluded under Options A and B.*
- *Option D: Calculate the costs for all exchange sites and all loops (current price methodology).*

5.26 Options A and B require an estimate of the percentage of exchange sites for which LLU will be practicable. ComReg is considering three possible percentages within these options:

⁴⁸ <http://www.arcep.fr/fileadmin/reprise/publications/c-publique/consult-boucle-cuivre0405-ang.pdf> “Consultation on copper local loops costing methods”

- **Sites corresponding to an area excluding that of the NBS:** This figure includes all the sites not covered by the NBS (National Broadband Scheme). Please refer to section 3 for details of this scheme.
- **Sites corresponding to areas that may be enabled⁴⁹ by OAOs, while also taking into account the expected roll-out of Eircom's Core NGN⁵⁰ footprint in the medium term:** The expected extent of Eircom's Core NGN deployment in the medium term is based on the information provided to ComReg by Eircom through the various fora currently ongoing. The exchanges concerned are likely to be the main focus of competition and may have been selected according to the same criteria as operators would use for investment in LLU.
- **Sites corresponding to the current number of exchanges DSL enabled by OAOs through LLU:** This is a rather lower number but may be more realistic as approximately 70 exchanges have been unbundled to date.

5.27 ComReg considers that the area not covered by the NBS is too high given the low likelihood of 90+% of the number of lines being fully enabled through LLU within the timeframe of this review, i.e. experience shows that it appears to be highly unlikely that this level of unbundling could be achieved in the medium term. This can be observed through the record of unbundling in Ireland to date as well as the economic viability of some of the more remote areas.

5.28 ComReg considers that a footprint corresponding to that of the number of exchange sites currently DSL enabled with LLU by OAOs will allow Eircom to recover its costs at this given point in time. However, the risk of adopting this approach is that if additional LLU exchanges are enabled, it may necessitate a review of the price during the price control period, to ensure Eircom continues to recover its costs, which is something that ComReg believes is not in anyone's interest. In order to avoid price uncertainty ComReg proposes that when reviewing exchange sites some additional ones, slightly beyond those that may be enabled, are factored in. While this might slightly overstate the price it avoids an excessively low price (which would result in a threat to the investment in alternative infrastructure), protects Eircom from an under recovery of costs and should reduce the necessity for an interim price review.

5.29 ComReg therefore considers that the most logical and appropriate approach is to base the methodology choice on the planned roll-out of LLU by OAOs, while taking into account Eircom's Core NGN planned rollout over the medium term.

5.30 ComReg considers that the principle of cost orientation makes it appropriate to prefer Options A and B, because Options C on its own and D would include sites where there is little or no chance of LLU being adopted by OAOs. ComReg marginally prefers Option B over Option A because it includes some recognition of

⁴⁹ i.e. installation by OAOs of their own equipment in eircom exchanges to provide services using LLU

⁵⁰ ComReg Document 07/40 – Regulatory Aspects of Next Generation Networks

http://www.comreg.ie/_fileupload/publications/ComReg0740_23994292.pdf

uncertainty and local variations. Option B includes all exchange sites, within the Eircom access network, albeit with different weightings. ComReg therefore provisionally proposes to use Option B, based on those exchanges which may be enabled by LLU by OAOs and also taking into consideration Eircom's Core NGN plans.

- 5.31 ComReg considers that calculating the costs with a BU-LRAIC cost model giving one percentage weighting to those exchange sites which may be unbundled by OAOs and also taking into consideration Eircom's NGN plans, and another percentage weighting to the other exchange sites that are unlikely to be unbundled is likely to provide a balanced approach between all OAOs. In ComReg's view, a balanced approach of this type, providing proper incentives both for the roll-out of alternative access infrastructures and the roll-out of LLU, is likely to bring most benefit to the development of the Irish telecommunications market. Furthermore, it allows Eircom to recover the costs of an efficient operator.
- 5.32 ComReg further considers that Eircom's Core NGN plans are relevant for the purpose of costing methodologies. These plans, together with those of industry, will assist ComReg in making a decision on the appropriate pricing methodology. ComReg also considers that copper lines that are *too long* are unlikely to be unbundled by OAOs. This is because DSL capabilities reduce the longer the length of the copper line. After a certain distance from the exchange the provision of broadband, via DSL, is not possible. Accordingly, ComReg is also considering combining Option C with Option B by excluding long lines from areas that are otherwise potentially viable.

Q. 13. Do you agree or disagree with ComReg's preliminary preferred option, to calculate the costs by giving x% weighting to those exchange sites which may be unbundled by OAOs and also taking into consideration Eircom's NGN plans and 1-x% weighting to the other exchange sites where unbundling is unlikely to take place? Please explain your response in detail.

Q. 14. Do you agree or disagree with the proposal to complement ComReg's preliminary preferred option by excluding very long loops, as described under Option C above, where there is no possibility that they could support broadband within the timeframe of this review? Based on your experience in the market, what is the maximum copper line length to support broadband? Please explain your response in detail.

Q. 15. Do you agree or disagree that there may be circumstances that might justify the review of the LLU price prior to the expiration of the suggested price control period? Please explain your response in detail.

Q. 16. In order for ComReg to make fully informed decisions in relation to the above proposals please provide as much detail as possible on investment plans (i.e. Eircom or where you are an existing operator who has unbundled or have intentions to unbundle), both Core NGN and unbundling by exchange site over the medium term. Please provide both quantitative and qualitative detail where possible. (ComReg acknowledges the commercial sensitivity of this information and all responses will be held in the strictest confidence).

Duration of proposed methodology for setting LLU prices

- 5.33 ComReg is of the preliminary view that the proposed methodology should be applied for a two to three year period from the effective date of any decision regarding LLU prices.
- 5.34 During the period of any price control ComReg is of the opinion that there are two possible methods of maintaining prices:
1. Price stability over the period of the price control; or
 2. Annual increase by the annual rate of increase in the consumer price index ("CPI"). (This was the method adopted under the previous price control).
- 5.35 By maintaining price stability over the period of the price control, OAOs can prepare and develop business cases with certainty over the input cost of LLU. At the end of the price control period, ComReg would intend to review and refine the BU model agreed for this price control period.

Q. 17. Do you agree or disagree with ComReg's preliminary view that LLU prices should be set in Ireland for a two to three year period from the effective date of any decision regarding LLU prices? Please explain your response in detail.

Q. 18. Do you agree or disagree that LLU prices should be stable over the period of the agreed price control, or should they increase annually by the rate of CPI? Are there any other options that ComReg should consider? Please explain your response in detail.

6 Proposed methodologies for setting SLU prices

- 6.1 *To set a price for SLU in accordance with cost orientation, ComReg must consider costs actually recovered and costs actually incurred by Eircom in its provisioning of SLU. In this chapter we consider the various methods for doing this.*

Overview

- 6.2 Up until recently, DSL based OAOs have not extensively used Eircom's SLU product to provide broadband because the investment needed per subscriber is too high and the practical difficulties too great. However, SLU may become a realistic option for OAOs in the medium term. ComReg has published a report on the likely viability of SLU prepared by Analysys Consulting Limited⁵¹.
- 6.3 For SLU to be used by OAOs, the price needs to be set at a level that incentivises efficient investment while ensuring the principle of cost orientation is satisfied. However ComReg would note that price is only one aspect of SLU as the process to unbundle also needs to be straightforward.
- 6.4 SLU prices need to be consistent with LLU prices. As a consequence, the methodology chosen for setting SLU prices should strike a balance between the two principles previously stated:
- *Encourage the development of alternative local loop infrastructure, and*
 - *Promote competition in the local access market through unbundling.*
- 6.5 As with LLU, the choice of methodology for setting SLU prices depends on the answers to two questions:
- *What are the alternative infrastructures to SLU?*
 - *Where will SLU be practicable?*

What are the possible methodologies for setting SLU prices?

- 6.6 In accordance with the reasoning detailed for setting LLU prices, two methodologies may be used for setting SLU prices:
- *The BU-LRAIC methodology, which is preferable if there is a risk of deterring investment in alternative local sub loops,*
 - *The CCA methodology, which is preferable if there is no risk of deterring investment in alternative local sub loops, because it is unlikely to be deployed in the medium term.*
- 6.7 An analysis of the alternative infrastructures to SLU will enable assessment of the risk of deterring investment in these technologies.

⁵¹ See ComReg Document 08/10 "Sub Loop Unbundling ("SLU") Report prepared by Analysys Consulting Limited for ComReg http://www.comreg.ie/_fileupload/publications/ComReg0810.pdf

What are the alternative infrastructures to SLU?

- 6.8 It is likely that OAOs using DSL will prefer SLU where LLU cannot provide high enough speed and where demand for high speed applications justifies the extra investment. Such applications may include, for example, High Definition Internet Protocol Television (“HD IPTV”) or Video on Demand (“VOD”) or for business customers.
- 6.9 With SLU and Very High Speed Digital Subscriber Line (“VDSL”) technology, customers that are located within 1 km from the street cabinet can be provided with up to 50 Mbit/s. Thus, fibre to the home (“FTTH”) and cable networks are the only alternative infrastructures to SLU. Today, the coverage of FTTH is not significant. FTTH is in ComReg’s view, unlikely to have a significant impact for the timeframe considered here.
- 6.10 ComReg’s objective is to ensure that medium term investment in cable networks will not be discouraged due to the SLU price being too low. This suggests to ComReg that it would be appropriate for it to set SLU prices on the basis of the BU LRAIC methodology.
- 6.11 Outside cable network footprints, ComReg considers that there is no risk of deterring investment in alternative infrastructure but also little or no prospective demand for SLU.

Where will SLU be practicable?

- 6.12 Up until recently, Eircom’s SLU product has not been extensively used by OAOs. It will still take time before the number of lines becomes significant:
- *SLU can take considerable time to roll out: the co-location process is under review by ComReg and industry. Furthermore the installation of new street cabinets near Eircom’s street cabinet may take a long time due in part to local planning procedures and other access considerations,*
 - *SLU is capital intensive (cost of new street cabinets and cost of fibre).*
 - *SLU may necessitate significant civil work in the absence of duct sharing with Eircom.*
- 6.13 ComReg considers that it is unlikely that OAOs will use SLU outside major urban areas. As there is a better duct system in these cities fibre can be more easily installed and there are also larger street cabinets which offer higher economies of scale. Thus in the medium term, SLU is unlikely to be used outside the footprint of the cable network because similar economies of scale apply to both cable and SLU.

Q. 19. Do you agree or disagree that SLU is unlikely to be used outside the footprint of the cable network in the medium term? Please explain your response in detail

ComReg's proposed option for SLU pricing methodology

- 6.14 ComReg considers that the most appropriate methodology for setting SLU prices is the BU – LRAIC methodology to avoid discouraging investment in cable and other infrastructure and to remain consistent with the methodology for LLU.
- 6.15 ComReg believes that the SLU price should be calculated using the same methodology as for LLU. The area where SLU is considered practicable would be major urban areas where there is density of population and which is served by large street cabinets.
- 6.16 This methodology is in ComReg's view:
- *Consistent with LLU pricing methodology.*
 - *Does not reduce incentives to invest in alternative infrastructures.*
 - *Provides a balanced approach between all OAOs, those relying on alternative infrastructures and those relying on unbundling of the local loop.*
 - *Allows Eircom to recover the costs of an efficient operator.*

Q. 20. Do you agree or disagree that BU-LRAIC provides an appropriate incentive for investment in local infrastructure for SLU? Please explain your response in detail.

Q. 21. In order for ComReg to make fully informed decisions in relation to the above proposals please provide as much detail as possible on investment plans (i.e. Eircom or where you are an existing operator who has unbundled or have intentions to unbundle), both Core NGN and unbundling by street cabinet over the medium term. Please provide both quantitative and qualitative detail where possible. (ComReg acknowledges the commercial sensitivity of this information and all responses will be held in the strictest confidence).

Duration of proposed methodology for setting SLU prices

- 6.17 ComReg is of the preliminary view that the proposed methodology should be applied for a two to three year period from the effective date of any decision regarding SLU prices
- 6.18 During the period of any price control ComReg is of the opinion that there are two possible methods of maintaining prices:
1. Price stability over the period of the price control; or
 2. Annual increase by the annual rate of increase in the CPI. (This was the method adopted under the previous price control).

- 6.19 By maintaining price stability over the period of the price control, OAOs can prepare and develop business cases with certainty over the input cost of SLU. At the end of the price control period, ComReg would intend to review and refine the BU model agreed for this price control period

Q. 22. Do you agree or disagree with ComReg's preliminary view that SLU prices should be set in Ireland for a two to three year period from the effective date of any decision regarding SLU prices? Please explain your response in detail.

Q. 23. Do you agree or disagree that SLU prices should be stable over the period of the agreed price control or should they increase annually by the rate of CPI? Are there any other options ComReg should consider? Please explain your response in detail.

7 Overview of the existing Eircom model used to set prices

7.1 *In this chapter we provide a summary overview of the existing model developed by Eircom which was used to set current LLU prices*⁵².

Background

- 7.2 When ComReg set the monthly LLU rental charge of €14.65 in Decision No.15/04⁵³ in 2004, it used a BU LRIC model which was developed by Eircom, ComReg and industry.
- 7.3 In early 2007, ComReg initiated a follow up to the original price setting work from 2004 in light of the fact that a detailed review would be required in 2008. In 2007, ComReg conducted an initial review of the Eircom model. Following that review ComReg decided to engage external consultants to build an improved and revised BU model. This would take into account a significant number of features of the existing model and also build on relevant data available from it (i.e. engineering rules where appropriate, location of exchanges).
- 7.4 Below are the ComReg's principal reasons as to why an expanded revised BU model needs to be developed. ComReg would also note that the *Arcor* judgement confirms that national regulatory authorities (such as ComReg) are allowed to determine the costs in valuing the access network on the basis of an analytical BU or a TD cost model i.e. they have discretion to use either. In general, the revised and improved model being proposed by ComReg will in its view result in more up to date location information in addition to a greater level of granularity on the entire access network of Eircom.

Construction of the original model

- 7.5 The Eircom model used in ComReg Decision No. 15/04 was constructed prior to 2003 and is described in Appendix C. ComReg acknowledges that a significant amount of time and effort went into the construction of that model. However, given that it is tentatively proposed at this stage to set a new monthly LLU rental charge in late 2008, using the model in its entirety would also mean that the underlying methodologies used in it would be approximately six years old. ComReg is of the view that all methodologies should be reviewed in setting the next monthly LLU rental charge and that these should be consulted on with industry.

Sampling

- 7.6 When it developed its model Eircom used a sample of approximately 10% of exchanges (Main Distribution Frames or "MDFs") covering 5 geo-types of areas in Ireland. These samples were then extrapolated to represent the entire Eircom access network. In view of the more advanced mapping systems that have now become available, ComReg proposes to map the entire access network using a geo-directory, thereby giving a much higher level of granularity and accuracy than

⁵² This is not intended to be a detailed or definitive treatment of every aspect of the Eircom model.

⁵³ Local Loop Unbundling - Review of eircom's ULMP Monthly Rental Charge, 5 November, 2004.

http://www.comreg.ie/_fileupload/publications/ComReg04110.pdf

previously achieved. This, in ComReg's view, will be a clear improvement on the existing model.

Development of the updated access model

- 7.7 ComReg wishes to develop an improved and more detailed model, which will include a review of methodologies (this consultation) and also a higher level of granularity in relation to sample size. It should be emphasised, however, that the proposed model will also draw extensively upon many components of the existing Eircom model as used for the last price setting exercise. Central to this are Eircom's engineering rules (where appropriate) for the design of the network and also its current cost data. Any divergence from this will be fully explained and consulted upon, once the model is built
- 7.8 Industry has also been asked as part of this project which commenced in 2007 to contribute in whatever means possible, both quantitatively and qualitatively and extensive interviews have been held to date.

SLU

- 7.9 The existing Eircom model does not incorporate calculations for the cost of SLU. During the review of the Eircom model ComReg was also engaged in a review of the business case for SLU in Ireland. This review has been published in ComReg Document 08/10 "*Sub Loop Unbundling*⁵⁴ ("*SLU*") *Report prepared by Analysys Consulting Limited for ComReg*".

Q. 24. Do you agree, or disagree that the approach proposed by ComReg, in developing an expanded revised BU model, is a reasonable one given the length of time that has elapsed since the last model was constructed and the availability of more sophisticated tools for building a model of the Eircom access network? Please explain your response in detail.

⁵⁴ See ComReg Document 08/10 "Sub Loop Unbundling ("*SLU*") Report prepared by Analysys Consulting Limited for ComReg http://www.comreg.ie/_fileupload/publications/ComReg0810.pdf

8 Submitting Comments

- 8.1 The consultation period will run from Thursday 10 July 2008 to Friday 22 August 2008 during which ComReg welcomes written comments from interested parties on any of the issues raised in this consultation document. In order to facilitate the analysis of responses, interested parties are asked to reference the relevant question numbers from this document.
- 8.2 Having analysed and considered the comments received, ComReg will publish a report on this consultation which will *inter alia*, summarise the responses to the consultation.
- 8.3 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 – ComReg Document 05/24.

Note:

- 8.4 ComReg appreciates that many of the issues raised in this consultation document may require respondents to provide confidential information if their comments are to be meaningful.
- 8.5 As it is ComReg's policy to make all responses available on its website and for inspection generally, respondents to consultations are requested to clearly identify confidential material and place confidential material in a separate annex to their response. Such information will be treated subject to the provisions of ComReg's guidelines on the treatment of confidential information – ComReg Document 05/24.

9 Appendix A - Regulatory, legislative and policy background

Historical background to setting of LLU prices

- A.1 The Office of the Director of Telecommunications Regulation (“the ODTR”) (the predecessor of ComReg) published its first consultation document (ODTR 99/21) on LLU in March, 1999. It proposed to require Eircom to offer LLU with prices calculated on the basis of LRIC, but consulted on whether deviations from LRIC would be justified.
- A.2 The ODTR then published its response to the comments received in April 2000 in ODTR 00/30 (Decision 6/00) where it required Eircom to offer both bitstream and LLU access. It confirmed that LRIC was an appropriate basis for calculating the price of LLU, but noted that there were circumstances that might justify a deviation from the LRIC standard, initially. It stated that the prices should be set on a geographically averaged basis and should recover the reasonably and efficiently incurred costs of LLU. In addition, Decision 6/00 addressed a number of practical issues and established working groups on operational issues.
- A.3 The ensuing discussions were overtaken by European developments when at the Lisbon summit of March 2000, it was agreed that LLU was required as a matter of urgency in order for Europe to reap the full benefits of the Internet and electronic commerce. In less than nine months, the European Parliament and Council had adopted Regulation 2887/2000 on unbundled access to the local loop (the “LLU Regulation”).
- A.4 The LLU Regulation required Eircom to publish a Reference Offer on unbundled access to the local loop and related facilities by 31 December, 2000. This was done, but it was incomplete. The ODTR then published further documents culminating in a direction to amend the ARO.
- A.5 The required work was not completed satisfactorily⁵⁵ and in September, 2001 the ODTR issued a further Decision 8/01 (ODTR 01/27R) directing Eircom to charge an interim set of prices based on a combination of benchmarking and a review and analysis of efficient costs including data from Eircom, including a line rental of €13.53 per month.
- A.6 These prices and Decision 8/01 were legally challenged by Eircom by way of judicial review in the High Court. The proceedings were discontinued in 2002. Prices were set by Decision Notice D4/02 (ODTR 02/36) which set a final rate of €16.81 for the period 1 January, 2001 to 31 March, 2002 and for the period 1 April, 2002 to 31 March, 2003.

⁵⁵ See foreword to ODTR 01/27R.

- A.7 Decision Notice D4/02 signalled that prices would be reviewed following 31 March, 2003 to take account of information provided by Eircom and industry during the Industry Advisory Group process. In addition, in order to allow Eircom enough time to submit prices for LLU, these charges were subsequently set as interim charges for the period 1 April, 2003 to 31 May, 2003.
- A.8 ComReg set new prices of €14.67 for the period 1 April, 2003 to 31 March, 2004 through Decision Notice D12/03 (ComReg 03/55R).
- A.9 Again Eircom legally challenged the prices by way of judicial review in the High Court. ComReg and Eircom settled the proceedings. The prevailing price of €16.81 was left in place, pending the setting of a new price.
- A.10 ComReg published two consultation documents, a Response to Consultation document and a Draft Decision Notice and Directions. These documents are listed below:
1. Loop Unbundling Costing Consultation Direct and Indirect Operating Expenditure Econometric Modelling (Document No: 04/21 of 27 February 2004).
 2. Local Loop Unbundling Costing Consultation Access Network Design Parameters and Costs of Certain Access Network Elements (Document No: 04/31 of 18 March 2004).
 3. Response to Consultation (Document No: 04/90 of 30 August 2004).
 4. Draft Decision Notice & Direction (Document No: 04/91 of 30 August 2004).
- A.11 The purpose of the consultations was to seek the views of Eircom and industry in relation to the costs of an efficient operator, having regard to operating expenditure costs and the costs of certain access network elements. The Response to Consultation summarised, where possible, the responses received from industry. This document also outlined ComReg's conclusions on the core issues. The Draft Decision Notice and Direction detailed ComReg's conclusion on the LLU monthly rental price and again, sought the views of Eircom and industry.
- A.12 These documents addressed the key points of difference between the Eircom and ComReg positions. The most important issue was whether Eircom's own costs should be used in the calculations, or whether it should be allowed recover only the costs of an efficient operator. ComReg issued a response to these consultations (Document No: 04/90) in which it stated that only efficient operator costs should be used where prices are based on the design of a modern efficient network valued at today's prices.

A.13 ComReg then proposed (in Document No: 04/91) to set a price of €14.65 per month for LLU. ComReg proposed that the ceiling for this price would remain fixed in real terms until 1 December, 2007 with Eircom being allowed to increase the price by no more than the rate of consumer inflation by reference to the consumer price index (“CPI”) in each year up to December 2007. This proposal was implemented through Decision Notice D15/04 (Document No: 04/110) of 5 November, 2004.

A.14 The history of LLU prices from the beginning of 2001 to the end of 2007 is set out in the following table:

Period	Charge
1 Jan 2001 – 31Mar 2003	€16.81
1 Apr 2003 – 31 Mar 2004	€14.67
1 Apr 2004 – 30 Nov 2004	€14.67
1 Dec 2004 – 30 Nov 2007	€14.65 plus annual inflation

A.15 In parallel to these activities, ComReg, as required by EU law⁵⁶, had undertaken a detailed review of wholesale and retail markets for the provision of electronic communications services. In the document entitled “*Market Analysis: Wholesale unbundled access (including shared access) to metallic loops and sub loops (Designation of SMP and Decision on Obligations)*”, Eircom was designated with SMP on the market for wholesale unbundled access (including shared access) to metallic loops and sub loops for the purpose of providing broadband and voice services, under the provisions of Regulations 25, 26 and 27 of the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2003 (“the Framework Regulations”)⁵⁷.

A.16 Eircom also had imposed on it the ex ante regulatory obligations which are set out in Regulations 10, 11, 12, 13 and 14 of the Access Regulations⁵⁸. The obligations imposed on Eircom under Regulation 14 of the Access Regulations include obligations relating to cost recovery and price controls and the obligation for cost orientation of prices. ComReg may under Regulation 14 of the Access Regulations, require prices to be adjusted.

⁵⁶ See the Framework Directive.

⁵⁷ Which transpose the provisions of the Framework Directive.

⁵⁸ Which transpose the provisions of the Access Directive.

Legislative and policy background

Eircom's legal obligation: Access to LLU and cost orientation

- A.17 Eircom has SMP in the market for LLU by virtue of ComReg Decision No. D8/04. Eircom will continue to have SMP until such time as ComReg determines that it no longer has SMP, following a market analysis. Under Decision Notice D8/04, Eircom has a legal obligation of cost orientation, in relation to the price of LLU.
- A.18 This consultation, relates ultimately to Eircom's SMP price obligation of cost orientation with regard to the prices it charges for LLU.
- A.19 ComReg has statutory powers under Regulation 10 (5) to issue directions requiring Eircom to make changes to a reference offer to give effect to obligations imposed under the Access Regulations and to publish the reference offer with such changes. Accordingly, ComReg has statutory powers to determine a new LLU price as a requirement for Eircom to comply with in furtherance of its legal obligation of cost orientation in relation to the price it charges for LLU.

Particular statutory provisions

- A.20 ComReg is obliged under Regulation 14 (3) of the Access Regulations to ensure that any cost recovery mechanism, or pricing methodology that it imposes, serves to promote efficiency and sustainable competition and to maximise consumer benefits. Regulation 14 (3) of the Access Regulations also provides that ComReg may take account of prices available in comparable competitive markets. It should be noted that these provisions mirror those at EU level, as set out under Article 13 (2) of the Access Directive.
- A.21 Recital 19 of the Access Directive provides that:

*“...the imposition by national regulatory authorities of mandated access that increases competition in the short-term should not reduce incentives for competitors to invest in alternative facilities that will secure more competition in the long-term”.*⁵⁹

- A.22 The Access Directive also provides that:

*“National regulatory authorities shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits.”*⁶⁰

⁵⁹ Recital 19.

⁶⁰ Article 13 (2).

A.23 Article 8 of the Framework Directive requires ComReg to promote competition by amongst other things:

- Ensuring that users, including disabled users, derive maximum benefit in terms of choice, price, and quality.
- Ensuring that there is no distortion or restriction of competition in the electronic communications sector.
- Encouraging efficient investment in infrastructure, and promoting innovation.

A.24 These objectives are also reflected in national legislation by s 12 of the Communications Regulation Act, 2002.

Ministerial policy directions and ComReg Strategy Statement

A.25 Ministerial Policy Directions have also been issued to ComReg in 2003 and 2004. In that regard s 13 (1) of the Communications Regulation Act, 2002 provides that:

*“In the interests of the proper and effective regulation of the electronic communications and postal markets, the management of the radio frequency spectrum in the State and the formulation of policy applicable to such proper and effective regulation and management, the Minister may give such policy directions to the Commission as he or she considers appropriate **to be followed by the Commission in the exercise of its functions.** The Commission shall comply with any such direction.”*
(Emphasis added).

A.26 Policy direction No. 3 of 2003 in relation to broadband provided that:

“The Commission shall, in the exercise of its functions, take into account the national objective regarding broadband rollout, viz, the Government wishes to ensure the widespread availability of open-access, affordable, always on broadband infrastructure and services for businesses and citizens on a balanced regional basis within three years, on the basis of utilisation of a range of existing and emerging technologies and broadband speeds appropriate to specific categories of service and customers.”

A.27 Policy direction No. 4 of 2003 in relation to industry sustainability provided that:

“The Commission shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry’s position in the business cycle and

the impact of such decisions on the sustainability of the business of undertakings affected.”

A.28 Policy direction No. 9 of 2003 in relation to consistency across technological platforms provided that:

“The Commission shall ensure that regulatory obligations imposed upon undertakings engaged in the provision of similar electronic communications services but using different technologies are consistent, taking into account any different conditions that may exist, including the existence of market power.”

A.29 A general policy direction in 2004 required ComReg to focus on competition. It stated as follows:

“ComReg shall focus on the promotion of competition as a key objective. Where necessary, ComReg shall implement remedies which counteract or remove barriers to market entry and shall support, in all ways possible, entry by new players to the market and entry into new sectors by existing players. ComReg shall have a particular focus on:

- *Market share of new entrants.*
- *Price margins on offer to operators at the wholesale level with the goal to ensure that such price margins will incentivise and advance competition.*
- *Price level to the end user.*
- *Competition in the fixed and mobile markets.*
- *Possibilities for incentivising alternative technology delivery platforms to support competition.”*

A.30 The reasons for that policy direction were stated as follows:

“The creation of sustainable competition between other authorised operators (OAO) and incumbents across different technical platforms and markets will benefit the economic and social development of Ireland by increasing the choice and decreasing the price to consumers and businesses. There is a need to continue to increase competition in the Communications Sector.”

A.31 A further policy direction provided that:

“ComReg shall use regulatory and enforcement tools, where necessary, to support Government initiatives and remove regulatory barriers, if any exist, to such initiatives to develop broadband. In encouraging the further rollout of broadband ComReg shall have a particular focus on:

- *The residential and SME sectors.*
- *Balanced regional development and.*
- *Incentivising broadband provision on alternative platforms.”*

A.32 The reasons for that policy direction were stated as follows:

“The development of broadband is a key enabler to enhance and maintain Ireland’s economic and social development. It is important that the regulatory environment underpins the development of available, affordable and competitive broadband services.”

A.33 ComReg’s own strategy statement for 2008 - 2010 (ComReg Document No. 07/104 published 17 December, 2007) sets out ComReg’s goals for the period. One of those goals is the creation of conditions suitable for competition and to promote innovation.

Eircom’s position of SMP

A.34 Should Eircom be found to still have SMP in the context of the new market analysis that will be completed in 2008, ComReg has the power to maintain a SMP obligation of cost orientation on Eircom. It may or may not be appropriate to maintain cost orientation in those circumstances, but those are matters that are the subject of a separate and future consultation. If Eircom is found to still have SMP in the future and a cost orientation obligation is imposed, any improved model and the methodologies employed (arising from this consultation) would be equally relevant and applicable in those circumstances also.

A.35 If Eircom is found not to have SMP in the LLU market upon completion of the market analysis in 2008, it would not in general, be legally permissible to impose an obligation of cost orientation on Eircom (subject to Article 5 of the Access Directive). In those circumstances, the matter of an appropriate methodology and a model underlying a cost orientation obligation would cease to be relevant, at least for the purpose of SMP obligations (but not necessarily for the *ex post* application of competition law, for example).

The Arcor judgement and the opinion of the Advocate General⁶¹

A.36 The opinion of the Advocate General and the final judgement of the ECJ in the *Arcor* case are also relevant to the matters discussed in this consultation document.

A.37 On 18 July, 2007, Advocate General Poiares Maduro delivered an opinion in the *Arcor* case. This was on foot of a request for a preliminary reference to the ECJ by an Administrative Court in Cologne, Germany. The German court had sought the opinion of the ECJ on a number of detailed questions concerning the obligation for cost orientation in pricing for LLU. Arcor AG & Co, a company seeking LLU from the German fixed line incumbent (Deutsche Telekom) had made the preliminary reference in the context of alleging that the prices set by Deutsche Telekom for access to LLU (and approved by the federal regulatory agency in Germany) were too high. On 24 April, 2008, the ECJ delivered its final ruling. The Advocate General's opinion and the final judgement consider the interpretation of the term "cost oriented" in the context of Regulation EC 2887/2000 (known as the LLU Regulation).

A.38 In *Arcor* a series of detailed questions was put to the ECJ. The Advocate General's opinion and the final ruling, provide useful guidance on the setting of cost oriented prices. The questions posed are set out below. Questions three and four are relevant to LLU in an Irish context and in the context of the issues discussed in this consultation document:

- *Question 1: Deviation from the standard of cost orientation.*
- *Question 2: Inclusion of depreciation and interest on invested capital.*
- *Question 3: Calculation of depreciation and interest.*
- *Question 4: Use of analytical cost models.*
- *Question 5: Margin of discretion.*
- *Question 6: Right of appeal by beneficiaries.*
- *Question 7: Burden of proof.*
- *Question 8: Calculation of depreciation and interest.*

⁶¹ Note that what follows is for general information purposes only and does not purport to be a legal interpretation of or a definitive treatment of the implications of the *Arcor* judgement.

Question 3: Calculation of depreciation and interest.

A.39 The third question asked what basis should be used for calculating interest and depreciation:

The current replacement value of the assets, expressed in terms of current daily prices at the time of valuation exclusively?

Or should depreciation already made prior to the time of valuation be deducted from the replacement value?

A.40 Since the LLU Regulation was silent on this point, there were widely differing views on this issue.

A.41 The Advocate General proposed that the concept of cost-orientation requires the approval of rates to make a balanced and proportionate compromise between the regulation's central aim of fostering competition on the local loop access market and the need to ensure the necessary level of investment in infrastructure taking account of the circumstances prevailing at the time.

A.42 The national court should ascertain whether the rates approval decision by the German regulator contains adequate justification for adopting the method of calculating the depreciation and the interest which the rates have to cover based exclusively on the current prices at the time of valuation. In the absence of such justification, the concept of cost-orientation of charges in the European Union requires that charges for access should be set at a figure below that obtained by applying such a method of calculating capital costs, in particular by deducting depreciation already made before the valuation date.

A.43 In other words, depreciation should be deducted unless there is adequate justification for using gross replacement costs, which are likely to be higher.

A.44 The Advocate General stated two possible justifications for using gross replacement costs. One was that the age of the network is advanced; the other that investment in alternative technologies available can be significantly discouraged if charges are set below the figures obtained using a calculation method based on the gross cost of replacing the network. However, if neither of these two justifications applies, the Advocate General concluded that it would be contrary to the concept of cost-orientation to use the gross replacement cost as the exclusive basis for calculating costs.

A.45 Also, the Advocate General recognised that setting charges for access to the existing local loop on the basis of the current cost of replacement with a new and equivalent local network does not necessarily reflect the costs inherent in the construction of this alternative infrastructure. This is because the alternative technology must be available, the investment costs in an alternative infrastructure are different from those which would be required to build a new local copper wire network and the functionality and economic potential inherent in the alternative infrastructure can be different from the functionality offered by the copper local loop. However, the Advocate General admitted that it is possible to use the gross replacement cost as the basis for calculating access costs.

Question 4: Use of analytical cost models

A.46 The fourth question asked whether Community law requires the national regulatory authorities to work on the basis of complete cost statements produced by the notified operator or whether it is permissible to use analytical cost models and, if so, what requirements they have to satisfy.

A.47 The Advocate General proposed that:

Theoretical models such as bottom up cost models are not precluded neither by the text of the regulation, the reasons for its introduction nor by case law.

Such models may be used to provide information on inefficiencies such as assets in excess of requirements in a hybrid use of bottom up and top down models.

A.48 The Advocate General noted that from another judgement in a case involving Mobistar⁶², price limits can be set lower than the levels calculated by theoretical bottom up cost models.

A.49 In relation to the extent to which analytical methods such as bottom up cost models can be used where rates are not supported by cost statements from the operator concerned, the Advocate General expressed the opinion that:

“Rates can be approved where they are not 100% supported by cost statements from the operator concerned, but a minimum level of cost statements is normally required;

The national authorities have a margin of discretion in determining which statements of costs are not essential and may be replaced by a bottom up analytical model;

The operators’ own cost accounting systems play an important role in the regulatory framework and therefore regulatory authorities cannot simply use a theoretical model to calculate depreciation and interest;

Since the principle of cost orientation refers first to the notified operator’s costs, the operator’s accounts provide the only starting point for establishing the costs and it would be methodologically incorrect to use a bottom up model as the starting point;

Where the existing local loop is already largely depreciated but still usable and valuable, the results of a bottom up model would produce results that are too high and incompatible with cost orientation; and

The exercise of discretion by the national authority should not encourage operators to take a strategic approach in not making available certain cost statements because the

⁶² Case C-438/04 [2006] ECR I-6675.

results of the bottom up model would be higher and so more advantageous.”

A.50 He concluded that where the calculation of depreciation and interest based on the gross replacement cost of assets:

“[...] is justified, then the use of a bottom up analytical cost model may be justified.”

“[...]is not justified, then, where the local network is largely depreciated but still operational, the use of a bottom up model is incompatible with the principle of basing charges on the operator’s costs.”

10 Appendix B – The ERG Common Position

- B.1 The ERG Common Position⁶³ (“*Guidelines for implementing the Commission Recommendation C (2005) 3480 on Accounting Separation and Cost Accounting Systems under the regulatory framework for electronic communications*”) is also relevant to the matters discussed in this consultation document.
- B.2 The ERG Common Position consists primarily of a description of the different methodologies that can be used.
- B.3 This appendix summarises those parts of the ERG Common Position that are most relevant to this consultation and provides a brief introduction to some of the concepts and their relationships to each other.
- B.4 The purpose of accounting separation is to provide a systematic dis-aggregation of costs, revenues and capital employed between disaggregated regulatory entities and services of a vertically integrated undertaking. It should also ensure that each financial report includes only costs, revenues and capital employed that are relevant to the regulatory entities and services. Accounting separation requirements may be developed starting from either historical cost accounting (“HCA”) or current cost accounting (“CCA”) principles.
- B.5 The process of dis-aggregation involves:
- *Identifying markets and services to be separated, providing more detailed information, (e.g. an individual profit and loss statement, a statement of capital employed and information on the main cost drivers).*
 - *Deciding how the average cost per component/activity is allocated to the specific disaggregated regulatory entities and services.*
 - *Choosing the methodology for the cost base (HCA; CCA) and for the cost allocation process (FAC/LRIC).*
- B.6 The attribution of costs to different services should be based on the principles of cost causality, objectivity, consistency, efficiency and transparency.
- B.7 The FAC approach attributes all relevant costs, revenues, assets and liabilities incurred by an undertaking to all of its outputs applying the causality principle. Management accounting techniques such as Activity-Based Costing (“ABC”) can be used.

⁶³ Note that what follows is for general information purposes only and does not purport to be a definitive treatment of the implications of the *ERG Common Position*.

B.8 Costs can be categorised, especially using FAC methodologies, as:

- *Directly attributable costs, i.e. those costs that can be directly and unambiguously incurred against regulatory entities.*
- *Indirectly attributable costs, i.e. those costs not falling in the directly attributable category that can usually be apportioned to regulatory entities on a measured objective basis. Typically an indirectly attributable cost would be caused by an internal cost driver, for example Human Resource (HR) costs could use weighted headcount. Costs attributable to a number of activities are called common costs.*

B.9 The fundamental objective is to arrive at an appropriate basis of attribution to comply with the principle of causation. However, when an NRA is considering or determining a cost recovery mechanism or value, there are factors to be taken into account, in addition to the cost causality principle, such as distribution of benefits, effective competition, cost minimisation, reciprocity and practicality.

B.10 A cost accounting system is a set of rules which supports the attribution of costs, revenues and capital employed to individual activities and services. It describes a set of systems, processes, policies and procedures that enables a notified operator to establish a record keeping regime necessary to meet its regulatory obligations which keeps track of and reports on revenues, costs, assets and capital employed.

B.11 One of the key objectives of a cost accounting system is to trace and analyse costs in order to demonstrate compliance with a cost orientation obligation for regulated services.

B.12 Two main methodologies are used to compute costs:

- *Fully attributed costs (“FAC”), (also referred as fully distributed costs (“FDC”)), and*
- *Long run incremental costs (“LRIC”).*

B.13 The ERG first laid down guidelines for the implementation of current cost accounting. These guidelines are more relevant for top-down approaches.

B.14 Historical cost information is generally accepted as being adequate for financial stewardship purposes but may provide unsatisfactory indicators for regulatory decision making. The ERG recommends that the relevant asset base should be valued based on current replacement cost values when prices are changing, e.g. due to technological change, or when using a forward-looking costing methodology. The criteria for the evaluation of network assets at current value should be agreed with the NRA and made transparent to market players.

B.15 The main regulatory impact of applying a current cost methodology is that it requires undertakings to record the value of assets to reflect their ‘value to the business’ which should result in a net asset cost base and measures of profits similar to that expected under fully competitive market conditions.

B.16 ERG specifies four different measures of current cost:

- *Gross replacement cost (GRC) – the value of a brand new network providing the same level of functionality and capacity as the existing network using assumptions for modern equivalent assets or alternative valuation methodologies. (The gross replacement cost would be equivalent to the net replacement cost and to the historic cost value if the assets had been purchased in the same period as the regulatory accounts and therefore at the start of their useful economic life.)*
- *Net replacement cost (NRC) - the lower of its net current replacement cost and its recoverable amount. The recoverable amount is the higher of an asset’s net realisable value and the amount recoverable from its future use (its economic value).*
- *Deprival value (DV) - the recoverable value of the asset to the organisation; that is, the higher of the economic value the asset is likely to generate and the net realisable value ('NRV') of the asset if it were sold.*
- *Economic value (EV) -the value of an asset based on the net present value of future cash flows.*
 - *The current cost is the lower of the deprival value and the net replacement cost, the deprival value being the higher of the Economic Value and the Net Realisable Value. The current cost is therefore the lower of the amount the company could recover from the asset and the cost to the company to replace the asset with an identical one.*
 - *The Modern equivalent asset (“MEA”) valuation is an option for the determination of the gross replacement cost.*

B.17 A gross MEA value is what it would cost to replace an old asset with a technically up to date new one with the same service capability, allowing for any differences both in the quality of output and in operating costs. For the replacement cost valuation to be appropriate it is not necessary to expect that the asset will actually be replaced.

B.18 Under the Current Cost Accounting methodology, the operators’ Income Statement would need to be modified in order to value assets at their current costs and, depending on the way the capital of the local loop operator is maintained, two approaches can be considered. The approaches differ in their definition of 'capital maintenance', that is, the way in which the capital of the company is viewed when determining profit.

B.19 Capital can either be viewed in operational terms (i.e. as the company's capacity to produce goods and services) or in financial terms (i.e. as the value of shareholders’ equity). These concepts are known respectively as “operating capital maintenance” (OCM) and “financial capital maintenance” (FCM):

- *OCM considers that the operating capability of the company is maintained. Capital maintenance under this approach requires the company to have as much operating capability - or productive capacity - at the end of the period as at the beginning. In this approach, revenues become profits after a sufficient amount has been provided to maintain the physical capability of the asset. OCM is used to determine charges, the revenue requirement would be derived as the sum of operating costs, historical cost depreciation, supplementary depreciation and a return on net assets.*
- *FCM considers that the financial capital of the company is maintained in current price terms. Capital is assumed to be maintained if shareholders' funds at the end of the period are maintained in real terms at the same level as at the beginning of the period. In this approach, revenues become profits after a sufficient amount has been provided to maintain the financial value of the asset (or the business). Under FCM, the revenue requirement would be the sum of operating costs, a return on net assets less holding gains/losses plus the adjustment to shareholders' funds, historical cost depreciation, and supplementary depreciation. Required revenue therefore differs depending on the capital maintenance concept used.*

B.20 NRAs will therefore need to be satisfied that the most relevant concept is applied and interpreted correctly depending on the purpose of the accounting information. For example, for the reporting of top-down regulatory accounts, the FCM concept might be preferred because it could better address the concerns of shareholders and potential investors.

B.21 Then the ERG details guidelines for the implementation of the LRIC methodology.

B.22 The LRIC (Long Run Incremental Cost) methodology calculates the cost of providing a defined increment of output, on the basis of forward looking costs incurred by an efficient operator.

B.23 The economic rationale behind this methodology is that it identifies the range (between the incremental cost 'floor' and stand-alone cost 'ceiling') between which a pricing signal could be considered rational assuming common costs are also fully recovered. It therefore helps NRAs in setting prices that neither encourage inefficient investment nor discourage efficient investment.

B.24 One particular issue for an NRA is to establish a basis for calculating a "forward looking" cost base. Given the uncertainties and difficulties of determining a forward look, LRIC computations normally take a cost base calculation using current cost methodologies.

B.25 The concept of incremental cost is similar, but not equal, to that of marginal cost. While an increment can be thought of as a finite quantity of a particular output, the term marginal refers to the last (infinitely small) unit of an output being considered. In economic theory prices based on marginal costs maximise economic surplus. Nevertheless, given the substantial economies of scale in electronic communications networks, it is considered to be more appropriate to analyse the costs of a specified increment of output, and ensure the appropriate recovery of common costs, rather than set a price at the marginal cost of a specified output.

B.26 The LRIC increment can be defined in two complementary ways:

- *It is 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;*
- *It is the total cost a firm would avoid in the long run if it ceased to provide the service.*

B.27 In general, the NRA will have to consider whether the market characteristics are such that application of LRIC best reflects the objective referred to in Article 8 of the Framework Directive, including the aim of the consolidation of the internal market and promoting efficient and sustainable competition and maximising consumer benefits. At the same time the tariff setting process, as informed by LRIC data, should consider the potential for margin squeeze issues.

B.28 LRIC cost modelling could be applied to determine this efficient cost level. An NRA could use either a BU or a top-down approach to determine the LRIC cost of an efficient operator.

- *A top-down approach takes as a primary data source the company's accounting information, and calculates the costs of the relevant increments (normally at component or product group level) and applying appropriate cost/volume relationships usually incorporating several layers or hierarchy of processing. Undertakings must apply a forward looking cost basis such as CCA and assumptions on efficiencies.*
- *A BU approach can be described as an engineering type model, which starts with the demand for the service/product included in the increment and initially uses dimensioning algorithms to build an efficient engineering network that can address this demand and then to assess the use of each network element to the different services of the increment.*

B.29 The two methods may be used as complementary tools. The top-down model to determine the efficiently incurred costs of the undertaking and the bottom-up model to check its efficiency. This method is referred to as the hybrid approach.

B.30 When an NRA has decided that the use of LRIC is appropriate, it will have to take a number of choices regarding, e.g.:

- *the time horizon;*
- *the size of the relevant increment;*
- *the allocation of common costs;*
- *the network topology to be modelled;, and*
- *time horizon.*

B.31 The “long run” is defined as the time horizon within which the operator can undertake capital investment or divestment to increase or decrease the capacity of its existing productive assets. Since forward looking costs are difficult to estimate, current costs are usually used as the best alternative.

B.32 In practice, the concept of forward-looking costs requires that assets are valued using the cost of replacement with the modern equivalent asset (MEA). The MEA is the lowest cost asset, providing at least equivalent functionality and output as the asset being valued. The MEA will generally incorporate the latest available and proven technology, and will therefore be the asset that a new entrant might be expected to employ. It is measured by adjusting the cost of a modern asset for functionality, capacity and so on to give the adjusted replacement cost.

Network topology

B.33 The network design in the LRIC model depends on what assumptions are made on network topology. One of the key decisions to be made in LRIC cost modelling is related to the question whether to adopt a ‘scorched node’ or a ‘scorched earth’ approach.

B.34 In a top-down modelling environment this is a decision between whether or not to allow the notified operator to base its costs on the existing network topology (modified scorch node).

B.35 In a BU modelling environment this is a decision between whether or not the BU model should take into account the existing network topology (scorched node), or whether the costs in the model should be based on an ideal topology (scorched earth).

B.36 Designing an optimal network topology is not a straightforward task. For feasibility reasons, it is appropriate to take the existing network topology as the starting point for the cost allocation process. Such a scorched node approach would imply that the existing points of presence are maintained, but that the technologies used are optimised and consistent with there being an actual or potential new entrant or efficient competitor.

- B.37 It can be appropriate to modify the scorched node approach in order to replicate a more efficient network topology than is currently in place. Such a modified scorched node approach could imply taking the existing topology as the starting point, followed by the elimination of inefficiencies. This may involve changing the number or types of network elements that are located at the nodes to simplify and decrease the cost of the switching hierarchy. Other important issues in this respect are how to deal with spare capacity in the network and the existence of stranded costs.
- B.38 When the modified scorched node approach is not applicable because the elimination of inefficiencies is not practical, it could be more appropriate to use a scorched earth approach.

Relevant increment

- B.39 In LRIC cost modelling a decision has to be made concerning the relevant increment to be used. In principle, there are an infinite number of different sized increments that could be measured, which can be grouped into single or multiple products, services, components or elements.
- B.40 It is important that increments are defined in such a way that the resulting incremental cost data is fit for purpose, i.e. that the outputs can be used to demonstrate that charges are cost oriented. This requires that LRIC outputs and reporting formats are appropriately disaggregated to the product or service level.
- B.41 Another relevant factor for defining the increment is the key external and internal cost drivers. Identifying these main cost drivers will assist the process of defining increments. NRAs should define the relevant increment that strikes the balance between the disaggregated level needed to demonstrate cost orientation and the disaggregated level that can be practically implemented.
- B.42 In LRIC-modelling, cost drivers can be used to identify cost volume relationships (CVRs). A cost driver is the factor or event that causes a cost to be incurred, while a CVR describes how costs change as the volume of the cost driver changes. The aim of identifying a CVR is to be able to demonstrate how costs change as the volume of the cost driver is altered.

Allocation of common costs

- B.43 Common costs are those costs that are not increment-specific and relate to more than one increment. Therefore, they cannot be avoided unless all the activities to which they are common are closed.

B.44 In a regulatory environment it is accepted that all services should bear, in addition to their incremental cost, a reasonable proportion of the common costs. The preferred method of allocating common costs is Equal Proportionate Mark-Up (EPMU). Using this method, common costs are recovered in proportion to the incremental cost already allocated to the separate products and services. The advantage of this method is that it is generally easy to implement and use. The disadvantage is that the allocation of common costs may not be related to the relative use of common cost by the separate products or services, which could make the allocation rather arbitrary. This may not be optimal from a welfare perspective, and could introduce adverse incentives for the parties involved in production and consumption.

11 Appendix C - Brief overview of Eircom's BU access model

- C.1 Outlined below is a brief overview⁶⁴ of Eircom's unbundled local loop access model as utilised in the previous price review. This overview does not examine in detail each aspect of the model but instead details, at a high level, the main inputs into that model. Pre 2003 Eircom developed a BU-LRAIC model of the local loop to provide a basis for the pricing for LLU. The output of the model is the recurring monthly cost per line excluding specific and common costs such as connection or IT and service operation costs. The costs due to fault repairs are not covered by the LLU monthly rental but by a specific item in the ARO, therefore they are not taken into account in the cost model.
- C.2 The model computes the costs of each copper access network element, from the MDF to the Network Termination Unit ("the NTU"). The model does not consider the costs of alternatives to the copper access, such as rural radio and carrier systems. The model assumes that the network structure in terms of the number and location of MDFs is maintained, i.e. it uses the scorched node approach, and the rest of the access network is dimensioned according to the predicted demand level.

Figure 8: Diagram of the Eircom's LLU cost model



(1) Analysis of the geo-type samples

- C.3 In order to assess the cost of the local loop, the model specifies five different geo-types i.e. area types with different characteristics chosen because the characteristics determine the costs of the local loop. The five geo-types respectively correspond to major cities, urban areas, urban-rural areas, rural areas and very rural areas.
- C.4 The model segments the Irish territory into 5 geo-types according to the line density (i.e. the number of working lines per km²) in the area covered by each MDF. The model uses samples from selected MDFs for each geo-type. For each of these samples, detailed information on the location of the customers and their distance from the MDF and of the type of cables used are provided. The different samples consist in a list of cable segments with route lengths, numbers of working lines and sizes of the cables for both main and distribution network. When the costs of each sample are calculated, these costs are multiplied by an expansion factor to obtain the costs of the whole geo-type. Expansion factors are used to estimate the national situation from the samples.

⁶⁴ Note that what follows is for general information purposes only and does not purport to a definitive review of the existing Eircom BU access model.

(2) Lines forecast

- C.5 For each geo-type, the model uses as an input the number of metallic lines in the base year and a growth rate for each year to provide a forecast over a 5 year period. The numbers of street cabinets, cross connecting points and distribution points in the base year are also provided as inputs and the model assumes that the number of lines per equipment remains constant over the 5 years when forecasting the number of equipments in year 5.

(3) Network dimensioning

- C.6 Taking account of both samples and demand data, the model simulates the deployment of a new local loop according to established engineering rules. The number and the size of the cables used for each route detailed in the samples are calculated according the demand for lines and a factor for spares. For each sample, the number of assets required to fulfil the forecast demand is determined. The number of assets is then determined at the national level using expansion factors. The split between overhead and underground infrastructures depends on the size and the length of the cable and also on the geo-type. For the underground infrastructures, the duct usage takes account of the size of the cables and an inefficiency factor that corresponds to the empty space left between the cables. A mix of the different possible surfaces (Carriageway, footway or verge) is used for each geo-type. The model also includes a sharing factor set by Eircom as an input reflecting the percentage of the length and the cost of the routes that is shared between core network and the access network.

(4) Price information

- C.7 The bill of materials used to set the unit costs of the model is provided by the supply-chain management system of Eircom using current equipment. The unit material cost of each network element is calculated by summing all the corresponding material costs, together with the labour costs, which are calculated considering both Eircom's labour rates and contractors' labour rates. The total cost is calculated by multiplying the unit costs with the lengths of the different types of infrastructure.

(5) Annualisation and OPEX

- C.8 The investment requirements are annualised using a tilted annuity formula. In order to calculate the annuities, the asset life and the technological progress rate are therefore given for all the types of equipment.
- C.9 Indirect costs are derived from the Eircom accounting system and are also annualised. The operating costs are also directly derived from Eircom's accounting system. However some of the costs designations taken to calculate the local loop OPEX are not relevant such as advertising costs.
- C.10 The total cost is finally obtained by summing the direct and indirect annualised CAPEX and the OPEX.

12 Appendix D – Consultation Questions

- Q. 1. Do you agree or disagree that there are only four possible methodologies (see Figure 5) for the setting of cost oriented LLU prices? Please explain your response in detail..... 19
- Q. 2. Which of the 4 possible methodologies for the setting of cost oriented LLU prices would you recommend, (a) HCA, (b) CCA, (c) TD LRAIC or (d) BU LRAIC, to be the most appropriate methodology for ComReg to use as part of the modelling exercise of the Eircom Access Network? Please explain your response in detail..... 19
- Q. 3. Do you agree or disagree that the two possible methodologies for setting the monthly LLU rental charge, in Ireland, are CCA or BU-LRAIC? Please explain your response in detail..... 23
- Q. 4. Do you agree or disagree with the summary as set out above (Figure 7) in relation to the methodologies used in EU15 countries for the purpose of setting cost-oriented LLU prices? If not, please explain why. If there is any additional information which should be brought to ComReg’s attention and you are aware of it, please include it in a detailed response. 33
- Q. 5. Do you agree with the proposition that, in general, where there is evidence that operators with their own alternative local loops (cable, FWA, etc.) have made, or have plans to make significant investments, that the preferred methodology in the EU 15 is BU LRAIC? Please explain your response in detail..... 33
- Q. 6. Do you agree with the proposition that, in general, where there is evidence that operators based on alternative local loops (cable, FWA, etc.) have not made significant investments to date and have no plans to do so that the preferred methodology in the EU 15 is CCA? Please explain your response in detail..... 33
- Q. 7. Do you agree or disagree that Option 1 (Apply CCA everywhere if alternative infrastructure is not likely to be available in a substantial area) is not appropriate in Ireland given the investment in alternative platforms to date? Please explain your response in detail..... 36
- Q. 8. Do you agree or disagree that Option 2 (Apply BU-LRAIC where alternative access infrastructure will probably become available and competitive and apply CCA elsewhere.) will most likely lead to geographically de-averaged prices? Please explain your response in detail..... 37
- Q. 9. Do you agree or disagree that Option 3 (Apply BU-LRAIC everywhere if it is likely that alternative access infrastructure will become available and competitive everywhere (or almost everywhere) provides an appropriate incentive for investment in alternative infrastructure? Please explain your response in detail..... 37
- Q. 10. Do you agree or disagree that ComReg should calculate the LLU price in accordance with the cost orientation principle taking into account the fact that some lines are more likely than others to be unbundled in the medium term? Please explain your response in detail..... 39
- Q. 11. Do you agree or disagree with ComReg’s preliminary view that the “medium term” for LLU should be 2 to 3 years from the date of any decision on LLU pricing? Please explain your response in detail..... 39

Consultation on proposals for Local Loop Unbundling Pricing Methodologies

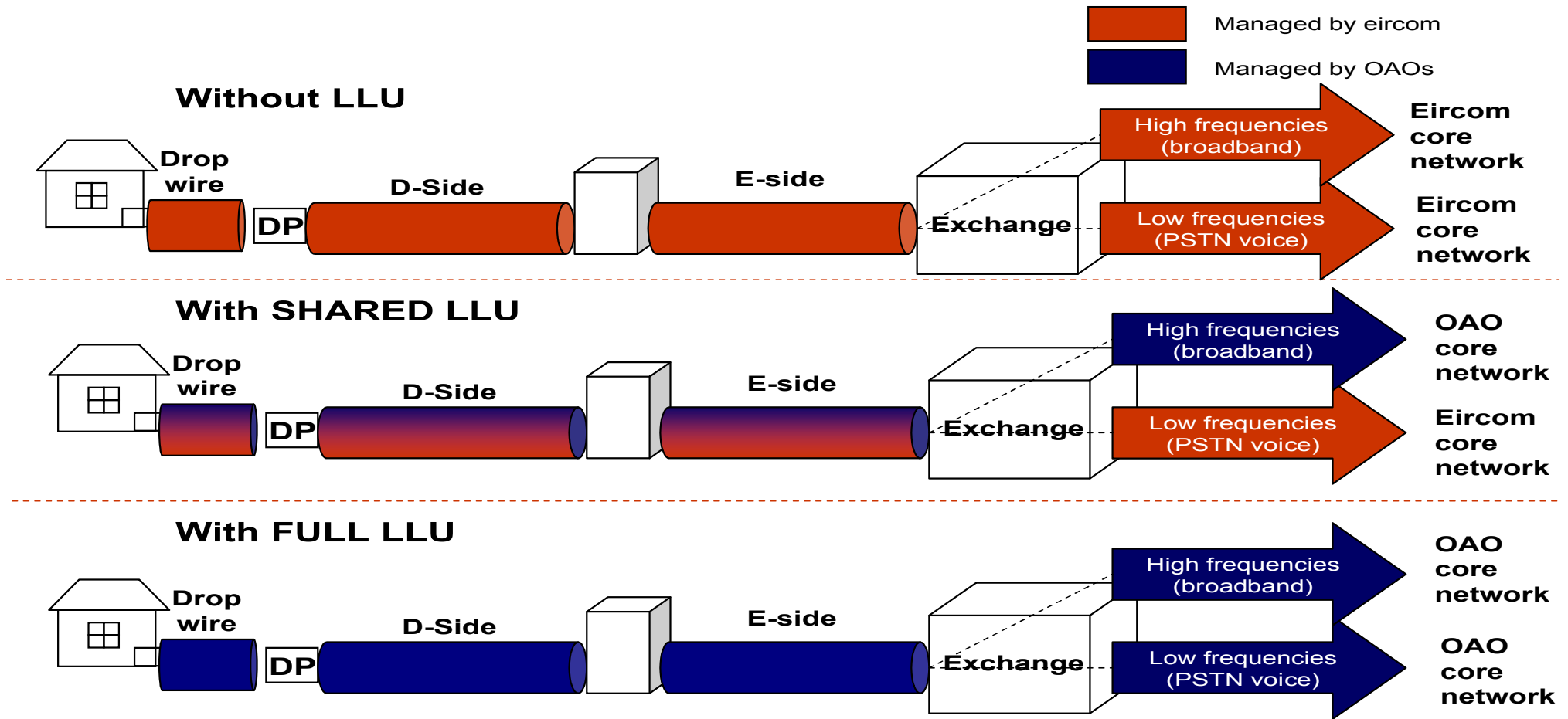
- Q. 12. Do you agree that a price should be specified for the duration of the “medium term”? Please explain your response in detail. 39
- Q. 13. Do you agree or disagree with ComReg’s preliminary preferred option, to calculate the costs by giving x% weighting to those exchange sites which may be unbundled by OAOs and also taking into consideration Eircom’s NGN plans and 1-x% weighting to the other exchange sites where unbundling is unlikely to take place? Please explain your response in detail. 41
- Q. 14. Do you agree or disagree with the proposal to complement ComReg’s preliminary preferred option by excluding very long loops, as described under Option C above, where there is no possibility that they could support broadband within the timeframe of this review? Based on your experience in the market, what is the maximum copper line length to support broadband? Please explain your response in detail. 41
- Q. 15. Do you agree or disagree that there may be circumstances that might justify the review of the LLU price prior to the expiration of the suggested price control period? Please explain your response in detail. 41
- Q. 16. In order for ComReg to make fully informed decisions in relation to the above proposals please provide as much detail as possible on investment plans (i.e. Eircom or where you are an existing operator who has unbundled or have intentions to unbundle), both Core NGN and unbundling by exchange site over the medium term. Please provide both quantitative and qualitative detail where possible. (ComReg acknowledges the commercial sensitivity of this information and all responses will be held in the strictest confidence). 42
- Q. 17. Do you agree or disagree with ComReg’s preliminary view that LLU prices should be set in Ireland for a two to three year period from the effective date of any decision regarding LLU prices? Please explain your response in detail. 42
- Q. 18. Do you agree or disagree that LLU prices should be stable over the period of the agreed price control, or should they increase annually by the rate of CPI? Are there any other options that ComReg should consider? Please explain your response in detail. 42
- Q. 19. Do you agree or disagree that SLU is unlikely to be used outside the footprint of the cable network in the medium term? Please explain your response in detail. 44
- Q. 20. Do you agree or disagree that BU-LRAIC provides an appropriate incentive for investment in local infrastructure for SLU? Please explain your response in detail. 45
- Q. 21. In order for ComReg to make fully informed decisions in relation to the above proposals please provide as much detail as possible on investment plans (i.e. Eircom or where you are an existing operator who has unbundled or have intentions to unbundle), both Core NGN and unbundling by street cabinet over the medium term. Please provide both quantitative and qualitative detail where possible. (ComReg acknowledges the commercial sensitivity of this information and all responses will be held in the strictest confidence). 45
- Q. 22. Do you agree or disagree with ComReg’s preliminary view that SLU prices should be set in Ireland for a two to three year period from the effective date of any decision regarding SLU prices? Please explain your response in detail. 46
- Q. 23. Do you agree or disagree that SLU prices should be stable over the period of the agreed price control or should they increase annually by the rate of

CPI? Are there any other options ComReg should consider? Please explain your response in detail..... 46

Q. 24. Do you agree, or disagree that the approach proposed by ComReg, in developing an expanded revised BU model, is a reasonable one given the length of time that has elapsed since the last model was constructed and the availability of more sophisticated tools for building a model of the Eircom access network? Please explain your response in detail..... 48

13 Appendix E – Visual representation of an access network

Shared and Full Access



14 Appendix F - Glossary of Terms

NOTE: This glossary of acronyms terms contains many, but not necessarily all of the acronyms and phrases associated with both LLU and the theory and practice of LLU regulation in the EU. The glossary is for guidance purposes. It is intended to help the reader in understanding this consultation document, but is not intended to be a legal or other interpretation of acronyms and terms.

Acronym	Full title	Description
3G	3G Wireless.	3G stands for the third generation of wireless communication technology. It refers to pending improvements in wireless data and voice communications through any of a variety of proposed standards.
ABC	Activity based costing	A method of allocating costs to products and services.
Access Directive	Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 on access to, and interconnection of electronic communications networks and associated facilities.	Establishes a regulatory framework, in accordance with internal market principles, for the relationships between suppliers of networks and services that will result in sustainable competition, interoperability of electronic communications services and consumer benefits. It establishes rights and obligations for operators and for undertakings seeking interconnection and/or access to their networks or associated facilities. It sets out objectives for national regulatory authorities with regard to access and interconnection, and lays down procedures to ensure that obligations imposed by national regulatory authorities are reviewed and, where appropriate, withdrawn.
Access Regulations	The European Communities (Electronic Communications Networks and Services) (Access) Regulations 2003.	They transpose Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities, in to Irish law.
ADSL	Asymmetric Digital Subscriber Line.	A data communications technology that enables faster data transmission over <u>copper telephone lines</u> than a conventional <u>voiceband modem</u> can provide.
AGCOM	Autorità per le Garanzie nelle Comunicazioni.	National regulatory agency for Italy.

ALTO	Association of licensed telecoms operators.	Representative body for the interests of new operators entering Ireland's telecoms market.
ANACOM	Autoridade Nacional de Comunicações.	National regulatory agency for Portugal.
ARCEP	L'Autorité de Régulation des Communications Électronique et des Postes.	National regulatory agency for France.
Arcor	Arcor AG & Co.	A German operator in the fixed line market, of that name. Also the name of a preliminary reference case heard before the ECJ.
ARO	Access Reference Offer.	A contract containing the various prices and terms and conditions that in Ireland, Eircom offers to OAOs for access to its network.
Backbone networks	Backbone networks.	Networks (telecommunications "highways"), used to transport large quantities of information between towns and cities connected to the network
Backhaul	Backhaul.	Infrastructure that enables the transmission of voice and data traffic from a remote site to a central site.
Base station	Base station.	A facility to house equipment to deliver wireless services.
Bitstream	Bitstream	A system whereby wireline incumbent installs a high speed access link to the customers premises (e.g., by installing ADSL equipment in the local access network) and then makes this access link available to third parties, to enable them to provide high speed services to customers. This type of access does not entail any third party access to the copper pair in the local loop.
BNetzA	Bundenetzagentur.	National regulatory agency for Germany.
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.
Byte	Byte	Smallest number of bits that a computer can handle in one unit. There are eight bits in a byte.
Cable	Cable.	A system of providing television to consumers via radio frequency signals. It is transmitted to televisions through fixed optical fibers or coaxial cables as opposed to the over-the-air method used in traditional television broadcasting (via radio waves)

		in which a television antenna is required.
CCA	Current cost accounting.	A system of valuing assets based on their replacement cost rather than their cost when purchased or produced.
Channel A, B, C, D	Channel A, B, C, D.	Specific frequency ranges that are licensed in each band.
CJ	European Court of Justice.	The highest court in Europe. The ECJ is sometimes called upon by referring national courts, to interpret points of law. This is known as a preliminary reference. (<i>Arcor</i> is an example).
CMT	Comisión del Mercado de las Telecomunicaciones.	National regulatory agency for Spain.
ComReg	Commission for Communications Regulation.	National regulatory agency for Ireland.
CPI	Consumer price index	The measurement of the average price of consumer goods and services purchased by households
CVR	Cost volume relationship.	A cost driver is the factor or event that causes a cost to be incurred. A CVR describes how costs change as the volume of the cost driver changes. The aim of identifying a CVR is to be able to demonstrate how costs change as the volume of the cost driver is altered.
DCENR	The Department of Communications, Energy and Natural Resources	The department of central Government in Ireland of the same name. The current Minister is Eamon Ryan T.D. The immediate predecessor of the DCENR was the Department of Communications, Marine and Natural Resources.
Download	Download.	To bring files down from the internet and put them on a hard drive so they can be worked on locally.
DP	Distribution Point.	A point within a <u>network</u> where the cable or <u>fibre</u> terminates prior to distribution to end customers.
Drop Wire	Drop Wire.	Connecting wire from pole to customer premises
D-side	Distribution side.	Access network from exchange to customer premises.
DSL	Digital subscriber line.	A family of technologies that provide digital data transmission over the wires of a local telephone network.
DSLAM	Digital Subscriber Line Access Multiplexer	Allows telephone lines to make faster connections to the Internet. It is a network device, located near the customer's location, 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.
Ducts	Ducts.	Tubes through which cables are laid.
EDC	Embedded direct cost.	Embedded direct costs represent the total costs of all assets and ongoing charges incurred in providing and maintaining an access network.
ERG	European Regulators Group.	Established by 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.
E-side	Exchange side.	Access network within an exchange.
FAC	Fully attributed costs.	An accounting method to distribute all costs among a firm's various products and services; hence, the FAC may include costs not directly associated with a particular product or service
FCM	Financial Capital Maintenance.	Under CCA, FCM is a concept that considers the financial capability of the local loop operator is maintained. Surpluses or deficits on the restatement of net assets to current cost are put in the income statement.
FDC	Fully distributed costs.	See “FAC” Fully attributed costs.
Fibre	Fibre.	Optical fibre is a glass or plastic fibre designed to guide light along its length. Optical fibres are widely used in fibre-optic communication, which permits transmission over longer distances and at higher data rates than other forms of communication. Fibres are used instead of metal wires because signals travel along them with less loss, and they are immune to electromagnetic interference
FICORA	Finnish Communications Regulatory Authority.	National regulatory agency for Finland.
Framework Directive	Directive 2002/21/EC of the European Parliament and the Council of 7 March 2002 on a common regulatory framework for electronic	The EU Directive which establishes a harmonised framework for the regulation of electronic communications services, electronic communications networks, associated facilities and associated services. It lays down tasks of national regulatory authorities and establishes a set of procedures to ensure the harmonised application of the regulatory framework throughout the Community.

	communications networks and services.	
FTTB	Fibre to the basement.	A form of fiber optic communication delivery in which the optical signal reaches the end user's living or office space.
FTTH	Fibre to the home.	A form of fiber optic communication delivery in which the optical signal reaches the end user's living or office space.
FWA	Fixed wireless access.	The use of radio links for the transmission of voice and data communications.
FWALA	Fixed wireless access local area.	Allows for the provision of wireless broadband services at fixed locations only.
GB	Gigabyte.	A unit of information or computer storage meaning either exactly 1 billion bytes.
GHz	Gigahertz.	One billion bytes per second.
GRC	Gross replacement cost.	The value of a brand new asset providing the same level of functionality and capacity as the existing asset.
HCA	Historical cost accounting.	A system where assets are valued at their original cost, less accumulated depreciation.
HD IPTV	High definition internet protocol television.	Higher resolution IPTV (see below) than standard television.
High frequencies	High frequencies.	The high frequency band of a copper cable is above about 25 KHz. ADSL signals are transmitted within this frequency band.
HSDPA	High-Speed Downlink Packet Access.	Allows networks based on 3G technology to have higher data transfer speeds and capacity.
IBPT	Belge des Service Postaux et des Telecommunications.	National regulatory agency for Belgium.
Incumbent	Incumbent.	Existing companies often first established as regulated monopolies.
IP	Internet Protocol.	Method for moving information from one network to another on the internet.
IP address	Internet protocol address.	Unique identity for every site on the internet.
IPTV	Internet protocol television.	System where a digital television service is delivered by using Internet Protocol over a network infrastructure, which may include delivery by a broadband connection.
ISDN	Integrated services digital network.	Provision of dial up services at twice the speed of standard telephone connections.
Jumpering	Jumpering.	Physically cross-connecting OAO and incumbents equipment using copper or fibre cables, within an exchange (copper wire pairs on the MDF –main dist frame, Co-Ax

		cable on the DDF-digital distribution frame , Optical jumpers on the ODF (optical dist frame), or within a street cabinet.
KB	Kilobit.	One thousand bytes.
Last Mile	Last mile.	The last mile is the final leg of delivering connectivity from a communications provider to a customer. Usually referred to by the telecommunications and cable television industries, it is typically seen as an expensive challenge because “fanning out” wires and cables is a considerable physical undertaking.
LLU	Local loop unbundling	The regulatory process of allowing multiple telecommunications operators use of connections from the incumbents telephone exchange's to the customer's premises.
Local Loop	Local loop.	The physical circuit connecting the network termination point at the subscriber's premises to the main distribution frame or equivalent facility in the fixed public telephone network provider's network.
Low frequencies	Low frequency	The low frequency band of a copper cable is below 4 KHz. POTS signals are transmitted within this frequency band.
Low frequencies	Low frequencies.	Enables provision of narrowband services.
LS	Line share.	Line share provides OAOs with shared use of a metallic path between an Eircom exchange facility and a customer's premises. Eircom retains the voice-band frequency spectrum of the circuit and continues to provide voice services and the OAO is able to use the remainder of the frequency spectrum.
MAN	Metropolitan area network.	A network serving businesses and residences in an urban setting.
Margin Squeeze	Margin Squeeze.	A margin or price squeeze occurs when the difference between the wholesale price and the retail price of the final good or service does not give an efficient downstream firm a reasonable profit margin.
MB	Megabit.	One thousand kilobits.
MDF	Main distribution frames.	A signal distribution frame for connecting equipment (inside an exchange) to cables and subscriber carrier equipment (outside an exchange).
MMDS	Multi channel, multi point distribution service.	A wireless telecommunications technology, used for general-purpose broadband networking.
Narrowband	Narrowband.	Telecommunication that carries voice information in a narrow band of frequencies.
NBS	National broadband scheme.	Provision of broadband services to certain target areas in Ireland in which broadband services are not available or are unlikely to be available in the foreseeable future.

NGN	Next generation networks.	The creation of an all IP environment (sometimes referred to as “Next Generation core networks”) and the introduction of high-speed high-bandwidth access networks (often called “Next Generation access networks or NGA networks”).
NITA	National IT & Telecom Agency.	National regulatory agency for Denmark.
Node	Node.	A point of connection on a network.
NRA	National regulatory agency.	A state or government agency which regulates businesses in the public interest.
NRC	Net replacement cost.	Value of another asset (of the same age) providing the same level of functionality and capacity as the existing asset.
NTU	Network termination unit	Terminating equipment which is placed in the customers premises which presents the physical circuit interface to the customer and to which the customer connects their equipment
OAD	Other authorised operator(s)	A fixed operator other than the incumbent, providing telecommunication services.
OCM	Operating Capital Maintenance.	Under CCA, FCM is a concept that considers the operating capability of the local loop operator is maintained. Surpluses or deficits on the restatement of net assets to current cost are put in the balance sheet in the current cost reserve.
ODTR	Office of the Director of Telecommunications Regulation.	Predecessor of ComReg.
OFCOM	Office of Communications.	National regulatory agency for the United Kingdom.
Oftel	Office of Telecommunications.	Predecessor of OFCOM.
OPTA	Onafhankelijke Post en Telecommunicatie Autoriteit	National regulatory agency for the Netherlands.
POTS	“Plain old telephone service”.	Standard telephone service that most homes use. In contrast, telephone services based on high-speed, digital communications lines are differentiated by speed and bandwidth.
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.
PTS	Post & Telestyrelsen.	National regulatory agency for Sweden.

RTR	Rundfunk & Telekom Regulierungs-GmbH.	National regulatory agency for Austria.
SAC	Stand alone costs.	Method that allocates a portion of common costs to each user by applying a ratio equal to the stand-alone cost of providing benefits to that user divided by the sum of the stand-alone costs for all users.
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.
Scorched earth	Scorched earth.	A model that is based on an ideal network topology and not the existing network topology of the operator.
Scorched node	Scorched node.	A model that takes as its starting point the existing network topology of the operator.
SLU	Sub loop unbundling.	Process by which a sub-section of part of the local loop is unbundled.
SMP	Significant market power.	A position which is equivalent to dominance of that market, that is to say a position of economic strength affording an undertaking the power to behave to an appreciable extent, independently of its competitors, customers, and, ultimately, consumers.
The Framework Regulations	The European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2003.	They transpose Directive 2002/21/EC of the European Parliament and the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services, in to Irish law.
ULMP	Unbundled local metallic path.	ULMP provides OAOs with exclusive use of a metallic path between the incumbents exchange facility and a customer's premises.
Upload	Upload.	To send files from a local computer to other internet users.
VDSL	Very high speed digital subscriber line.	Support exceptionally high-bandwidth applications such as High-Definition Television. (See above for a definition of DSL).
VoD	Video on Demand.	Allows users to select and watch video and clip content over a network as part of an interactive television system.
VoIP	Voice over internet protocol.	The transport of voice traffic across the internet.
VPN	Virtual private network.	A communications network tunneled through another network, and dedicated for a specific network.

Consultation on proposals for Local Loop Unbundling Pricing Methodologies

WiFi	WiFi.	A wireless-technology brand owned by the Wi-Fi Alliance, promotes standards with the aim of improving the interoperability of wireless local area network products.
WiFi hotspot	WiFi hotspot.	A venue that offers Wi-Fi access.
Wireless Cable	Wireless Cable.	Name given to the service of MMDS (See above).
WUA	Wholesale unbundled access.	Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location.